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Evaluation of Solvent Loss from Vapor Degreaser Systems

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The U.S. Environmental Protection Agency is evaluating pollution reduction capabilities of vapor degreasers and new developments in vapor degreasing systems and operations. The principal objectives of this project are to develop and implement a program for assessing solvent loss from degreasing systems of various designs, and to report the test conditions, procedures, results, and conclusions in a form usable by air pollution agencies and industry.

Tests were performed from October 1978 to July 1979 to evaluate the effects of different variables on the rate of solvent loss from degreasers. The variables tested include the following degreaser modifications and operating conditions: freeboard ratio, load cross-sectional area, refrigerated freeboard chiller, hoist speed, lip exhaust, crosscurrent air velocity, degreaser size, solvent type and lid.

The cost of each modification was analyzed based on capital costs, annual expenses, and solvent saved because of the modification. The evaluations of solvent loss or savings were based only on the degreaser operating period; idle time (the solvent boiling and cooling period) was disregarded.

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EVALUATION OF SOLVENT LOSS FROM VAPOR DEGREASER SYSTEMS

By

PEDCo Environmental, Inc.
11499 Chester Road
Cincinnati, Ohio 45246

Contract No. 68-02-2535
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Project Officer

Charles H. Darvin

INDUSTRIAL ENVIRONMENTAL RESEARCH LABORATORY
OFFICE OF RESEARCH AND DEVELOPMENT
U.S. ENVIRONMENTAL PROTECTION AGENCY
CINCINNATI, OHIO 45268

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FOREWORD

When energy and material resources are extracted, processed, converted and used, the related pollutional impacts on our environment and even on our health often require that new and increasingly more efficient pollution control methods be used. The Industrial Environmental Research Laboratory-Cincinnati (IERL-Ci) assists in developing and demonstrating new and improved methodologies that will meet these needs both efficiently and economically.

Studies by the U. S. Environmental Protection Agency and by industry have identified potential options for emission control, and limited experimentation has indicated that devices such as increased freeboard height ratic, automatically sealing lids, and refrigerated freeboard chillers, can significantly reduce the rate of organic emissions from degreasers. Further, these options would not require major changes in plant operation or equipment. They are inexpensive, easy to operate, and effective in reducing solvent loss from degreasers.

Although previous test programs have indicated the effectiveness of these control options, no detailed quantification of this effectiveness has been made. This research program was designed to evaluate the capability of less expensive ways of controlling solvent loss from vapor degreasers.

For further information concerning this subject, contact the Energy Pollution Control Division, Nonferrous Metals and Minerals Branch.

David G. Stephan
Director
Industrial Environmental Research Laboratory
Cincinnati

ABSTRACT

The U.S. Environmental Protection Agency is evaluating pollution reduction capabilities of vapor degreasers and new developments in vapor degreasing systems and operations. The principal objectives of this project are to develop and implement a program for assessing solvent loss from degreasing systems of various designs, and to report the test conditions, procedures, results, and conclusions in a form usable by air pollution agencies and industry.

Tests were performed from October 1978 to July 1979 to evaluate the effects of different variables on the rate of solvent loss from degreasers. The variables tested include the following degreaser modifications and operating conditions:

Freeboard ratio
Load cross-sectional area
Refrigerated freeboard chiller (RFC)
Hoist speed
Lip exhaust
Crosscurrent air velocity
Degreaser size
Solvent type
Lid

The tests were conducted in a laboratory equipped with temperature, humidity, and ventilation controls. All the variables (except increases in crosscurrent air velocity) were tested under calm air conditions at an average velocity of 0.1 m/s (20 ft/min). All the tests but one were conducted in two typical degreasers; that one test was conducted in a smaller degreaser.

The cost of each modification was analyzed. These analyses were based on capital costs, annual expenses, and solvent saved because of the modification. The evaluations of solvent loss or savings were based only on the degreaser operating period; idle time (the solvent boiling and cooling period) was disregarded.

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Mr. Richard W. Gerstle served as PEDCo Project Director and Vishnu S. Katari served as Project Manager. Mr. Katari and Mr. Edmund S. Schindler were the principal authors.

SECTION 1

INTRODUCTION

The U.S. Environmental Protection Agency (EPA) initiated a research program for the purpose of evaluating the solvent loss reduction capabilities of various degreaser modifications, controls, and operating practices on open-top vapor degreasers. PEDCo Environmental, Inc., was contracted to carry out the research program. The American Society for Testing and Materials (ASTM) through its Committee D-26 on degreasers, assisted the EPA in defining and formulating the test program and reviewing its progress. A special ASTM, D-26 subcommittee was established for this purpose.

The study was conducted in two parts. Part 1 included the writing of a detailed test plan, which was submitted to EPA for technical review.* The plan provided details of tests, including location, solvents, variables and control modifications, parameters, and procedures. Part 2 was the implementation of the final test plan after approval by EPA.

Section 2 of this report describes the actual test program, including degreaser specifications, site layout, and procedures. Section 3 presents the results and analyses of solvent loss rate under the conditions tested. Section 4 presents an evaluation of the economic ramifications of the different degreaser modifications and variables. Section 5 summarizes the results and gives recommendations for further data collection.

Appendix A presents raw test data in a series of tables displaying successive degreaser weights throughout each test. Appendix B presents the summary data from individual tests according to the modifications and operating conditions that were used. Statistics generated from these data formed the basis for evaluation of the degreaser modifications. Appendix C gives the statistical evaluation of the test data. Appendix D presents the cost information upon which the economic analysis is based.

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* PEDCo Environmental, Inc. Degreaser Systems Evaluation Test Plan. EPA Contract No. 68-02-2535, Task No. 3. March 1978.

The equipment and instrumentation used in these tests conformed to English units of measure. The data are given in this report in the International System of Units (SI) as well as in English units. The reader is cautioned that data based on SI equivalents may differ slightly from the original data.

SECTION 2

TEST PROGRAM

The test plan presented the procedure and the criteria for selection of degreasers, solvent, modifications, and variables. Only negligible deviations occurred between the test program and the test plan. This section describes elements of the test program, including degreaser specifications, solvents, site, variables, and procedures followed during actual testing.

DEGREASER DESCRIPTION

Three degreasers (A, B, and C) were used for the test program. Most of the tests were conducted with Degreasers A and B, which were sized to accommodate the same load and throughput. Degreaser C was approximately one-fourth the size of Degreasers A and B. Table 1 presents degreaser specifications.

Degreaser A had an open top area of 1.38 m^2 (15 ft^2) and was made of phenolic-coated carbon steel. It was equipped with a spiral condenser coil placed horizontally along one end. This coil served as the primary condenser. Degreaser A was also equipped with a refrigerated freeboard chiller (RFC) that operated at temperatures from 1° to 2°C (34° to 36°F). Hereafter, this chiller is referred to as RFC I. Degreaser A had a fixed freeboard ratio (FR) of 50 percent and was furnished with a separate collar that was used to adjust FR from 50 percent to 75, 100, and 125 percent. In addition, a lip exhaust system could be added to the degreaser. The lip exhaust came equipped with a manually operated lid.

Degreaser B had an open top area of 1.40 m^2 (15.11 ft^2) and was made of stainless steel. Tubing wrapped around the perimeter served as the primary condenser. Degreaser B was equipped with a refrigerated freeboard chiller that operated at -29° to -40°C (-20° to -40°F). This chiller is hereafter referred to as RFC II. Like Degreaser A, Degreaser B had a fixed FR of 55 percent that could be adjusted to 75, 100, or 125 percent by use of a separate collar. Additionally Degreaser B came equipped with a manually operated lid.

TABLE 1. GENERAL SPECIFICATIONS OF TEST DEGREASERS[a]

Specifications	Degreaser A[b]	Degreaser B	Degreaser C
Overall dimensions (L x W x H), cm (in.)	249 x 168 x 170 (98 x 66 x 67)	252 x 114 x 163 (99 x 45 x 64)	113 x 67 x 112 (44.5 x 26.5 x 44)
Vapor space dimensions (L x W x H), cm (in.)	152 x 91 x 76 (60 x 36 x 30)	163 x 86 x 76 (64 x 34 x 30)	64 x 41 x 31 (25 x 16 x 12)
Top opening dimensions at lip (L x W), cm (in.)	152 x 91 (60 x 36)	63 x 86 (64 x 34)	72 x 49 (28.25 x 19.25)
Solvent capacity, liter (gal)	435 (115)	227 (60)	76 (20)
Water condenser:			
Type	Jacket and offset coil	Jacket and perimeter coil	Perimeter coil
Exposed surface	Copper-finned condenser coil	Six turns of 3/4-in. pipe, two turns below, two in jacket	10 to 12 turns of 5/8 in. tubing
Water rate, liter/s at 10°C (gal/h at 50°F) rise	0.12 (115)	0.17 (160)	0.13 (120)
Water inlet temperature, °C (°F)	10 (50)	10 (50)	10 (50)
Outlet temperature, °C (°F)	38-40 (100-104)	38-40 (100-104)	
Heat input, maximum kW	24	24	4
Fixed freeboard height, % of width	50	55	75
Refrigerated freeboard chiller			
Type	Direct expansion	Direct expansion	None
Refrigerant	R-12	R-22	
Refrigerant temperature, °C (°F)	1 to 2 (34 to 36)	-26 (-15)	
Exposed surface	2 turns finned copper tubing, 5/8-in. o.d., 7 fins/in.	3 turns finned copper tubing, 5/8-in. o.d., 5 fins/in.	

[a] All the degreasers can be operated using either 1,1,1-trichloroethane or methylene chloride.

[b] Add-on exhaust system adds 10 cm (4 in.) to the height and has a 1.1 kW (1-1/2 hp) fan with a capacity of 1.2 m^3/s (2550 ft^3/min).

Degreaser C had an open top area of 0.35 m^2 (3.78 ft^2) and was made of stainless steel. A perimeter coil served as the primary condenser, and the fixed FR was 75 percent. Like Degreasers A and B, Degreaser C came with a manually operated lid but, unlike Degreasers A and B, Degreaser C was equipped with neither an RFC nor a separate collar to adjust FR.

Degreasers A and B were used simultaneously to provide test repetition. Further, the two chillers that were to be evaluated (and which operated at different temperatures) could not easily be installed on one degreaser. Degreaser C, which was smaller, was used to evaluate the relationship between solvent loss and top opening area.

Tests using 1,1,1-trichloroethane (TE) were completed first, followed by tests using methylene chloride (MC). During the TE tests that included refrigerated freeboard chillers, the manufacturer of RFC II observed that the unit was operating improperly. The manufacturer made a correction at the end of the TE series of tests. Before correction, RFC II operated at temperatures between -23° and -32°C (-10° and -25°F); during the MC tests, it operated at corrected temperatures between -29° and -40°C (-20° and -40°F). For the purpose of verification, the RFC II tests using TE were repeated with the chiller operating at the corrected temperature, between -29° and -40°C (-20° and -40°F).

SOLVENTS TESTED

A limited number of chlorinated hydrocarbon solvents are used in degreasing. The solvents are chosen on the basis of toxicity, flammability, evaporation rate, effects on nonmetallic portions of the parts cleaned, solubility of soil, and other properties. The nature of the material to be cleaned and the soil to be removed usually dictates the solvent that is chosen. Grease deposits that melt only at high temperatures may require a solvent with a high boiling point, such as perchloroethylene (121°C or 250°F boiling point). Metals sensitive to temperature may require a low boiling solvent, such as methylene chloride (40°C or 104°F boiling point) or trichlorotrifluoroethane. The removal of water from parts being cleaned would also require perchloroethylene (the only halogenated solvent with a boiling point above that of water) or azeotropes of other solvents.

The solvents 1,1,1-trichloroethane and methylene chloride were selected for testing in this study because the extreme difference in their properties allowed the tests to verify whether the solvent loss rate from degreasers differs according to the solvent used. Some important properties of these two solvents are summarized in Table 2.

TABLE 2. PROPERTIES OF VAPOR DEGREASER SOLVENTS

Parameter	1,1,1-trichloroethane	Methylene chloride
Density, kg/liter (lb/gal)	1.3 (10.84)	1.32 (10.98)
Boiling point, °C (°F)	74.1 (165.4)	40 (104)
Evaporation rate (CCl_4 = 100)	103	363
Water solubility, % by weight in water	<0.1	1.38
Specific heat, cal/g per °C (Btu/lb per °F)	0.258	0.28
Vapor density, g/liter (lb/ft^3)	4.6 (0.28)	47 (2.93)
Toxicity, ppm[a]	350	350
Molecular weight	133	85
Latent heat, cal/g (Btu/lb)	57 (102)	79 (142)
Solvency, K-B value[b]	120	136
Solvency	Moderate	Strong
Stabilization	Yes	Yes
Photochemical reactivity	No	No
EPA classification	Exempt	Exempt

[a] Refer to current OSHA Occupational Exposure Standards.

[b] Volume in milliliters required to produce a defined degree of turbidity when added to a standard solution of kauri in normal butyl alcohol.

TEST SITE DESCRIPTION

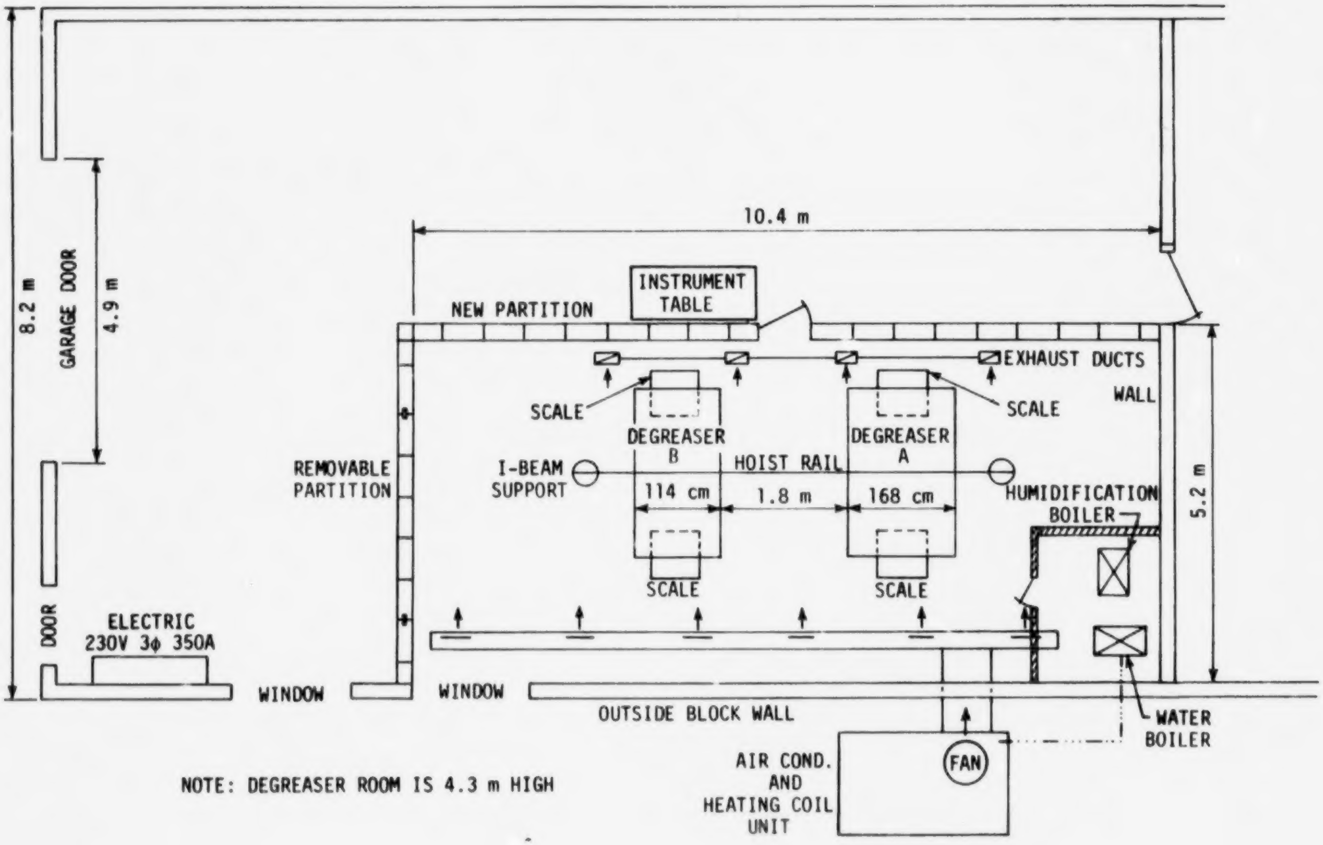
The degreasers used in this study were operated in an isolated room, measuring 56 m^2 (600 ft^2), within a larger building in Morrow, Ohio. Special preparations were made to establish the controlled test conditions (Figure 1). The room climate was controlled by a separate air conditioning unit, a hot water boiler for heating, and a steam boiler for humidification. The room was also equipped with an exhaust system to prevent the buildup of organic vapors. The air conditioner was located outside the building, while the two boilers were enclosed in a small room the northwest corner of the degreaser room. Under controlled conditions, the room could maintain a temperature of 21°C (70°F) and a relative humidity between 40 and 60 percent. Well water, at a rate of 4 liters/s and 10°C (60 gal/min and 50°F), and electricity (single phase, 230 VAC and 100 amps; three phase, 230 VAC and 300 amps) were available.

The degreasers were placed side by side about 1.8 meters (6 feet) apart and centered along the south wall of the room. Each machine was set on two single-beam scales having a precision of 0.11 kg (0.25 lb). A balance indicator on each scale improved the weighing precision by magnifying the beam tip movement six times. Each has additional freeboard height capabilities.

Figure 2 shows one of the two degreasers in operation. During tests of the smaller degreaser, Degreaser B was replaced by Degreaser C, the smaller unit. Figure 3 shows the smaller degreaser in operation next to the larger degreaser (which is seen at the right).

The load used in each degreaser during the tests was a black iron pipe coil with an extra heavy wall. The pipe, which measured about 9 m (30 ft) long, weighed 45.4 kg (100 lb), and was electroplated with zinc, was placed on a perforated metal sheet in a 23-kg (50-lb) basket. Figure 4 shows the load in the basket. The load was designed to be water-cooled rapidly after each degreasing cycle. The outside diameter of the load coil was 3.5 cm (1.35 in.), and the distance between turns (measured at the center of the coil) was about 5 cm (2 in.). The baskets for Degreaser A and Degreaser B contained four turns of load coil each; Degreaser C contained one turn. The height of the load was about 15 cm (6 in.) for Degreasers A and B, and 10 cm (4 in.) for Degreaser C. Figure 5 shows one test load as it is descending into the degreaser.

The loads were raised and lowered into the machines by a pair of ½-ton chain hoists (one hoist for each degreaser) that were suspended from a horizontal I-beam 4.6 m (15 ft) above the floor. The sampling probe network for each machine was built into a wooden framework and supported 15 cm (6 in.) above the



NOTE: DEGREASER ROOM IS 4.3 m HIGH

Figure 1. General view of testroom.

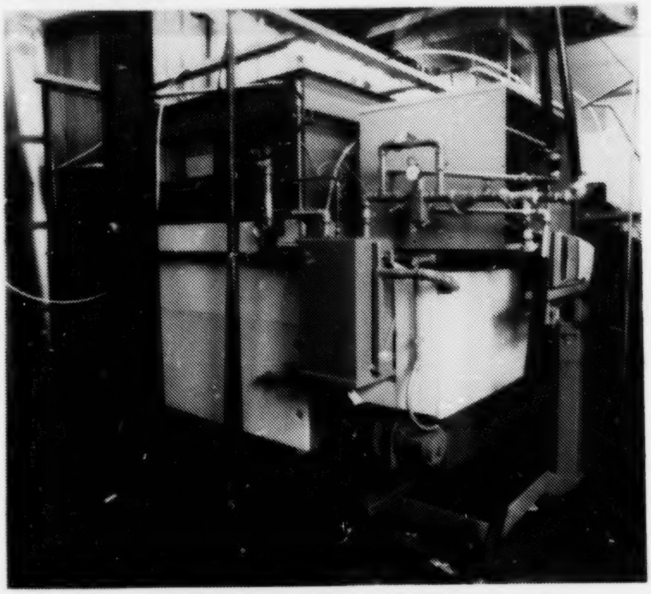


Figure 2. A test degreaser in operation.

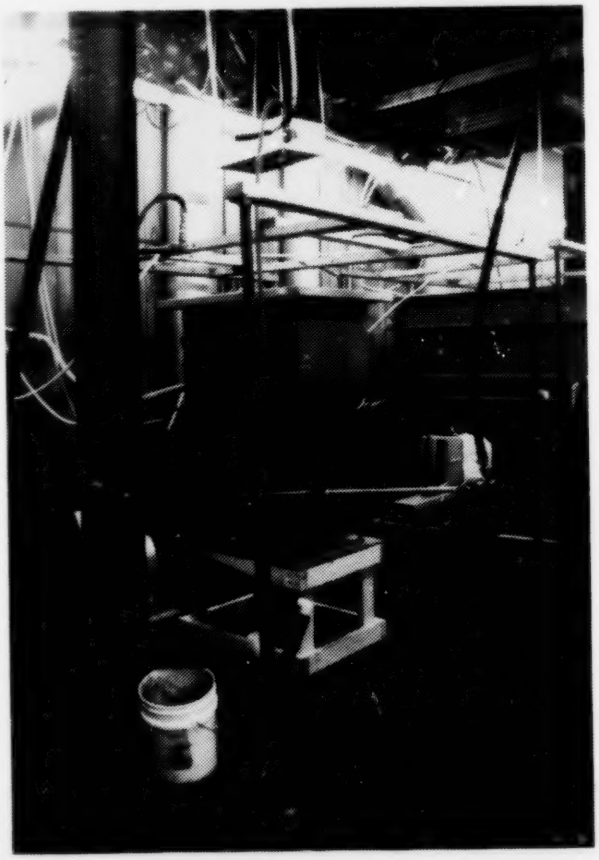


Figure 3. Smaller test degreaser in operation.

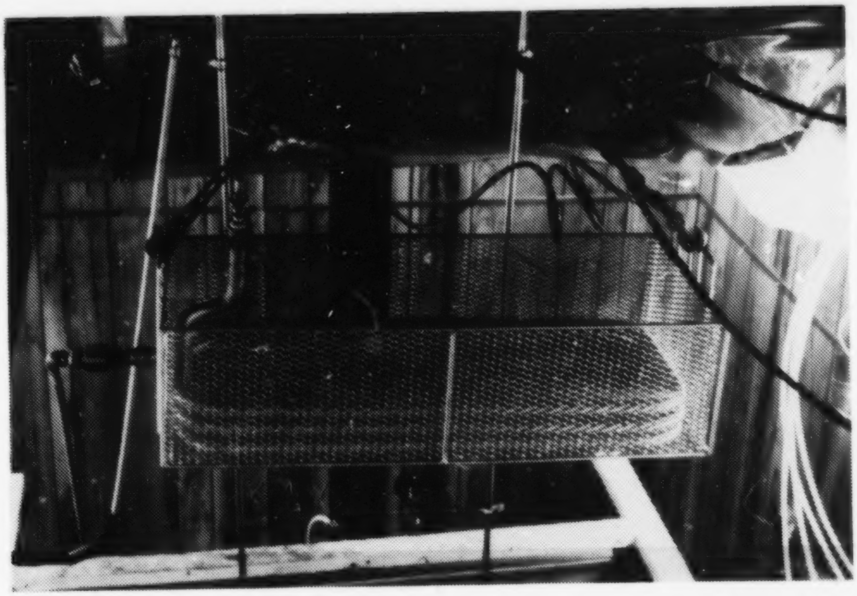


Figure 4. Degreaser load.

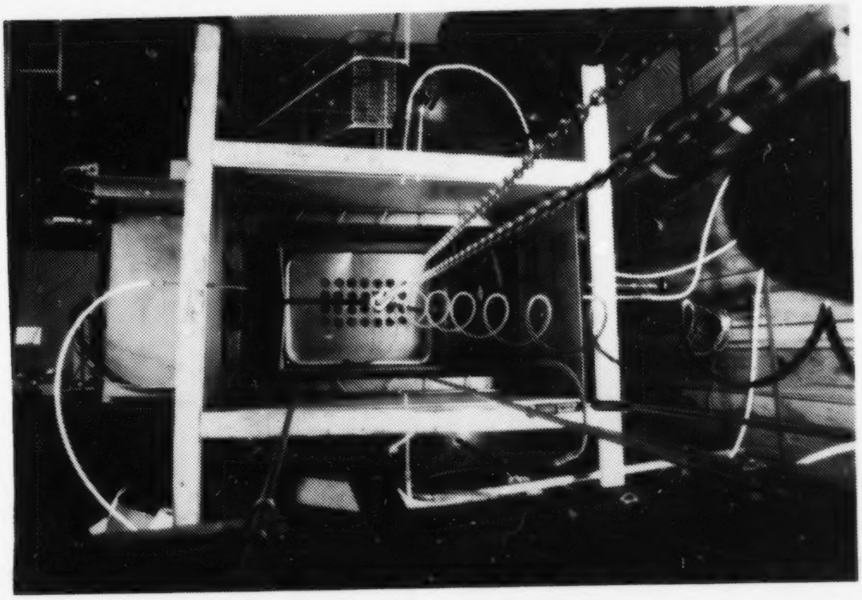


Figure 5. Top view of load descending into degreaser.

degreaser lip. This design prevented the network from affecting the weight of the degreasers. The support legs were adjustable to accommodate differing freeboard heights.

Each sampling probe was connected by flexible plastic tubing, through a ball valve, to a manifold outside the degreaser room. A connection was then made from the manifold to the infrared analyzer, allowing sample analysis from one or any combination of probes at any given time. The analyzer equipment was placed outside the degreaser room to avoid any bias due to the presence of solvent vapors in the air directly surrounding the instruments. All inlet water lines were connected with unions to ease disassembly if they proved to be a source of weighing error; outlet water connections were made via slip fittings to allow unrestricted vertical movement as the machine weight fluctuated.

All precautions were taken to ensure compliance with Occupational Safety and Health Administration (OSHA) regulations. A certified industrial hygienist was consulted at various stages of design and construction to ensure the safety and health of the participants.

Direct worker protection included safety procedures, respirators, gloves, aprons, and eye protectors to be used during normal solvent handling operations such as filling and emptying the degreaser, or during upset conditions.

Exposure to solvent vapors was reduced by installing the appropriate ventilation system in the degreaser room. During the testing period, a calm air velocity was maintained over the degreaser. Continuous ventilation was required as an environmental control to prevent excessive vapor concentrations. Conditioned air was brought in to replace the ventilated air. A ventilation rate of two air changes per minute provided safe levels of vapor concentration.

Measurements of air velocity taken perpendicular to the degreaser tank wall at 23 cm (9 in.) above the lip on all four sides (of two degreasers) averaged 0.10 m/s (20 ft/min). At each of the eight measuring sites, velocity varied as much as 0 to 0.25 m/s (0 to 50 ft/min) because of air turbulence caused by the movement of ventilated and conditioned air. The average value of 0.10 m/s (20 ft/min), therefore, represents the average of all eight sites.

Tests were made to compare the rates of solvent loss while the ventilation system was in operation and while it was not in operation. No differences in solvent loss were observed. As a result, the air velocity described above was accepted as being equivalent to a calm air velocity for the purpose of evaluating solvent loss.

TEST VARIABLES AND SYSTEM MODIFICATIONS

The following variables were tested, individually or in combinations. The variables were selected after reviewing typical vapor degreasers and their design features, and after considering recommendations in previous studies. System modifications included:

Lid
Freeboard ratio
Refrigerated freeboard chiller.

System variables included:

Load cross-sectional area
Hoist speed
Increased crosscurrent air velocity.

In addition, solvent loss rate from a degreaser using lip exhaust was assessed.

Lid

Open-top degreasers usually have lids made of heavy metal, although some are equipped with canvas or rolled-up covers. Studies show that the use of lids helps to control solvent loss.* The pneumatic cover was found to bring a 20 to 40 percent reduction in solvent emissions with 1,1,1-trichloroethane. Several tests of idle degreasers holding boiling and nonboiling solvent were conducted in this program.

Freeboard Ratio

Freeboard height is the distance from the top of the vapor zone to the top of the degreaser tank. The primary purpose of the freeboard is to reduce drafts near the interface between air and solvent vapor. The Occupational Safety and Health Administration currently requires a ratio of freeboard height to degreaser width of at least 50 percent or 36 inches, whichever is shorter, for all vapor degreasing tanks with a condenser or vapor level thermostat.† When the solvent is methylene chloride or trichlorofluoroethane, the required ratio is 75 percent. Laboratory tests conducted in undisturbed air indicated a 27 percent reduction in the rate of solvent loss when the freeboard ratio was increased from 50 to 75 percent. A 55 percent reduction was achieved in turbulent air by increasing the ratio to 100 percent.*

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* Suprenant, K. S., and D. W. Richards. Study to Support New Source Performance Standards for Solvent Metal Cleaning Operations. The Dow Chemical Company. EPA Contract No. 68-02-2535, 1976.

† American Society of Testing and Materials. Handbook of Vapor Degreasing. ASTM Publication 310 A, April 1976.

In this study, freeboard ratios of 50, 75, 100, and 125 percent were tested individually and in combination with other variables.

Refrigerated Freeboard Chiller

Two types of chillers were used for secondary cooling of solvent vapors: an above-freezing chiller (Refrigerated Freeboard Chiller I) and a subzero chiller (Refrigerated Freeboard Chiller II). The primary purpose of these chillers was to reduce the rate of solvent loss from the top of the degreaser.

Refrigerated Freeboard Chiller I consisted of multiple turns of a special finned tubing with a heat absorption capacity of 96 J/s per linear meter (100 Btu/h per linear foot) of refrigeration coil or pipe around the perimeter of the degreaser just above the vapor line. Refrigerant was controlled to a temperature of 1° to 2°C (34° to 36°F).

Refrigerated Freeboard Chiller II used tubing similar to RFC I. The basic unit consisted of two or more turns of refrigerated coil around the perimeter of the degreaser above the primary condenser coil. A refrigeration unit located near the degreaser circulated a refrigerant at a temperature of -23° to -40°C (-10° to -40°F) through the condensing coils. The resulting inversion layer of cold, dry air spread above the solvent vapor line and inhibited vapor diffusion. Presumably, less solvent was used because solvent vapors could not penetrate the inversion layer.

Load Cross-Sectional Area

The ratio of the load cross-sectional area to the degreaser opening has an important effect on solvent consumption because the load movement produces a pumping action. The recommended normal (maximum) ratio is 50 percent; however, abnormal loads at a ratio of 70 percent are not uncommon in degreaser operations. All the variables, including freeboard ratio, refrigerated freeboard chiller, and solvent, were tested at the two ratios of load cross-sectional area.

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* Suprenant, K. S., and D. W. Richards. Study to Support New Source Performance Standards for Solvent Metal Cleaning Operations. The Dow Chemical Company. EPA Contract No. 68-02-2535, 1976.

Hoist Speed

A load is entered and removed in degreaser operations by a vertical hoist system. The vertical movement of the load in the degreaser generates a pumping or piston action that increases solvent loss rate. The recommended maximum hoist speed is 0.06 m/s (11 ft/min). In this study, tests were conducted at a hoist speed of 0.04 m/s (8 ft/min), which is less than the maximum recommended. Some of the tests were repeated at 0.08 m/s (16 ft/min) for the purpose of evaluating the effect on solvent loss of hoist speeds greater than the recommended maximum.

Increased Air Velocity

Manufacturers usually recommend that a degreaser be installed at locations free from drafts caused by ventilators, fans, and doors so that it can be operated under calm air velocities. Several tests (Nos. 47, 71, 72, and 77) were run with higher velocities over Degreaser B for the purpose of determining the effect of increased draft over degreasers on solvent loss.

Degreaser A was used at the same time for tests of lip exhaust. Air velocity was increased with a three-speed floor fan, 51 cm (20 in.) in size, that was suspended from the ceiling at 162 cm (64 in.) from the nearest side of the degreaser and 69 cm (27 in.) above the degreaser top. The fan was positioned to blow air across the degreaser width. Velocity measurements were made at various locations during each test. Average air velocity for each test was determined from the range of measurements taken at 2.5 to 5 cm (1 to 2 in.) above the lip at the corners and midpoint of each side of the degreaser (in the direction parallel to airflow). Other velocity measurements were taken at the same locations but in the direction perpendicular to airflow, and at 23 cm (9 in.) above the lip in the direction parallel to airflow and 31 cm (12 in.) in front of the fan. When the fan was operated at low speed, no increase in velocity was noticed (Test 46). When operated at medium speed (Tests 47, 72, and 77), the fan provided an average velocity of 0.26 m/s (52 ft/min) with a standard deviation of 0.22 m/s (43 ft/min). At high speed (Test 71), it provided an average velocity of 0.43 m/s (84 ft/min) with a standard deviation of 0.27 m/s (54 ft/min).

Figures 6 through 8 present the velocity readings taken at various locations during the tests of increased air velocities.

Lip Exhaust

A lip exhaust is used around the top of a degreaser to withdraw solvent-laden air that normally would be lost in the

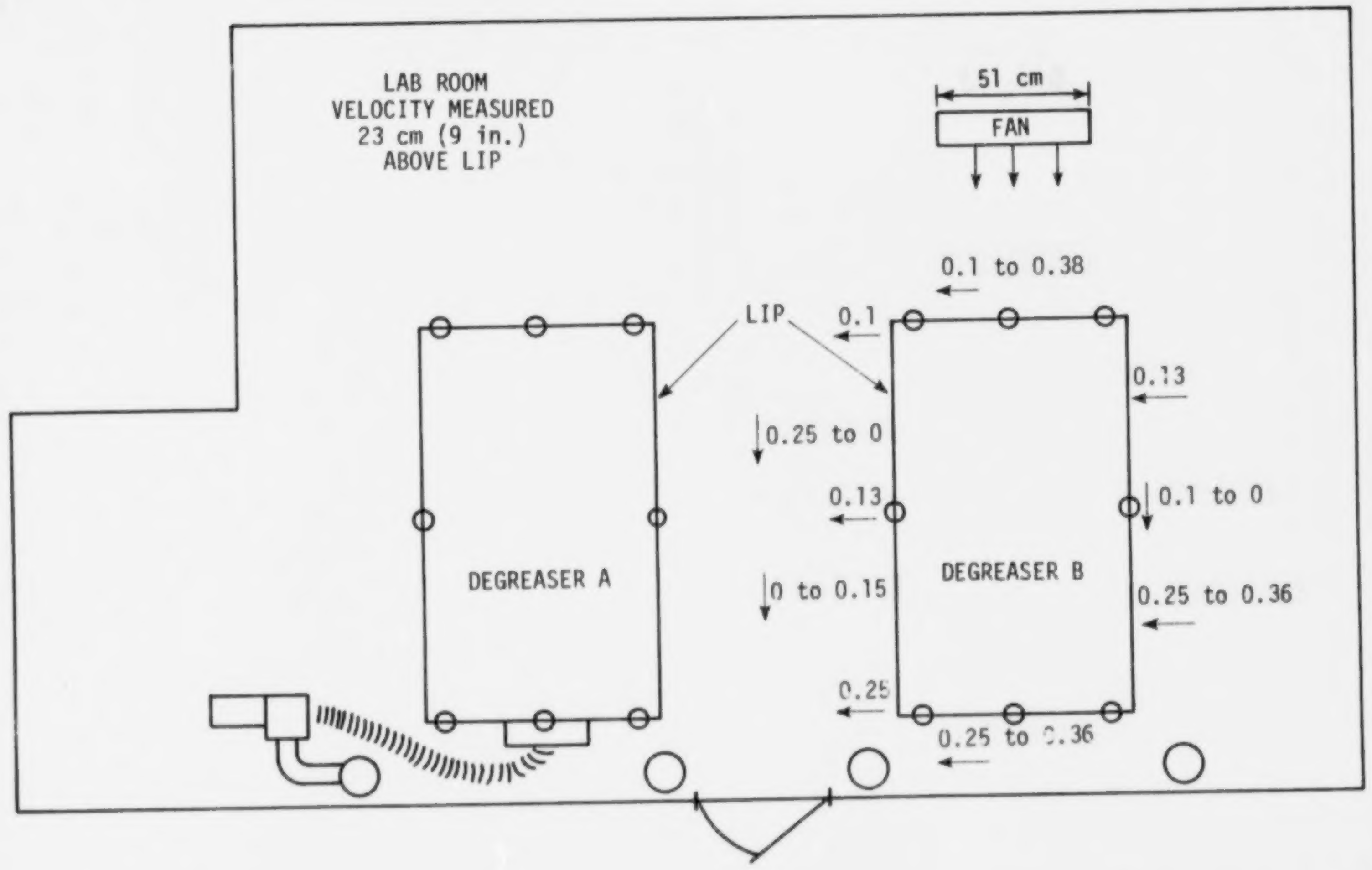


Figure 6. Increased air velocity and lip exhaust during Test 46.
(measured in m/s)

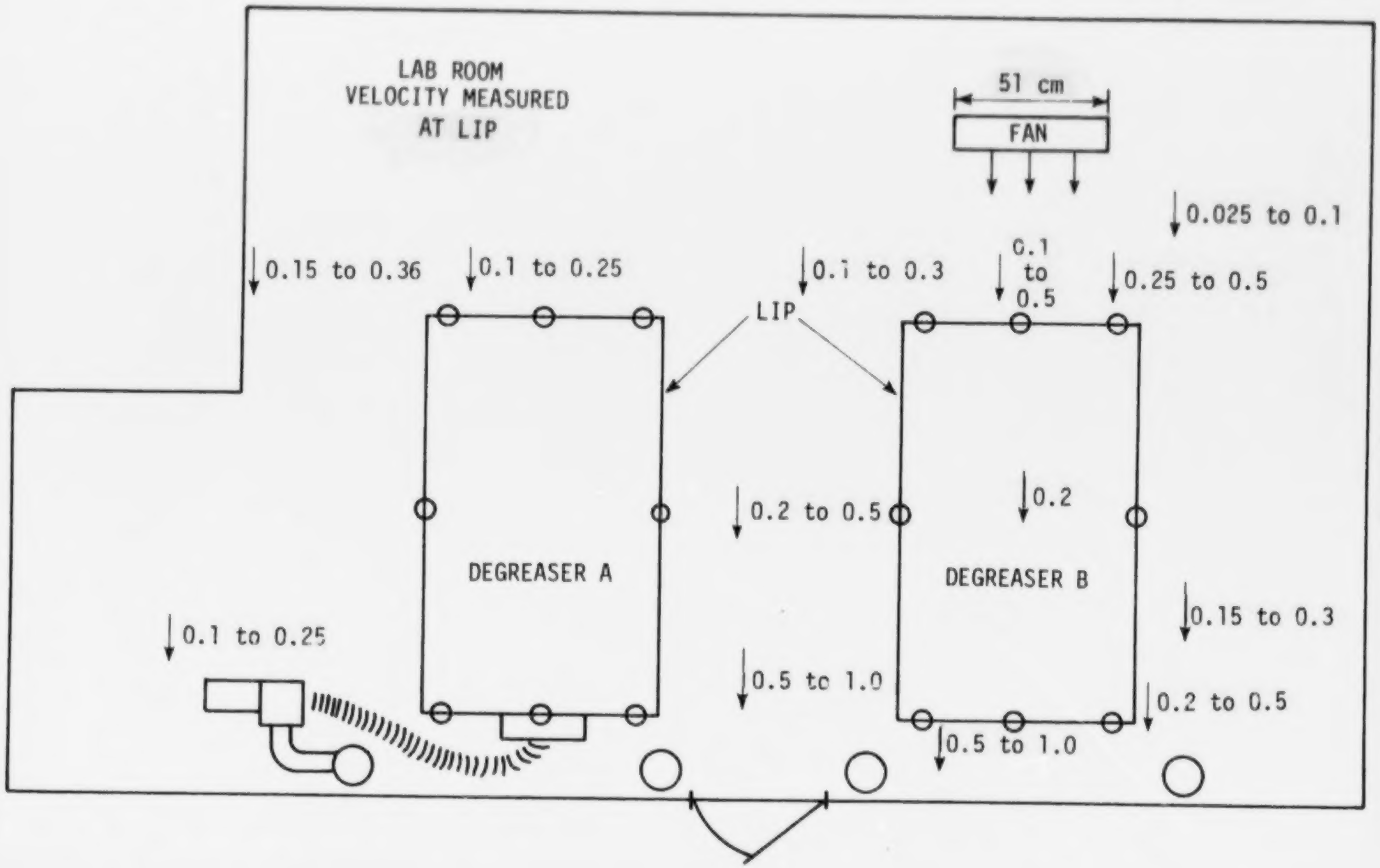


Figure 7. Increased air velocity and lip exhaust during Test 71.
(measured in m/s)

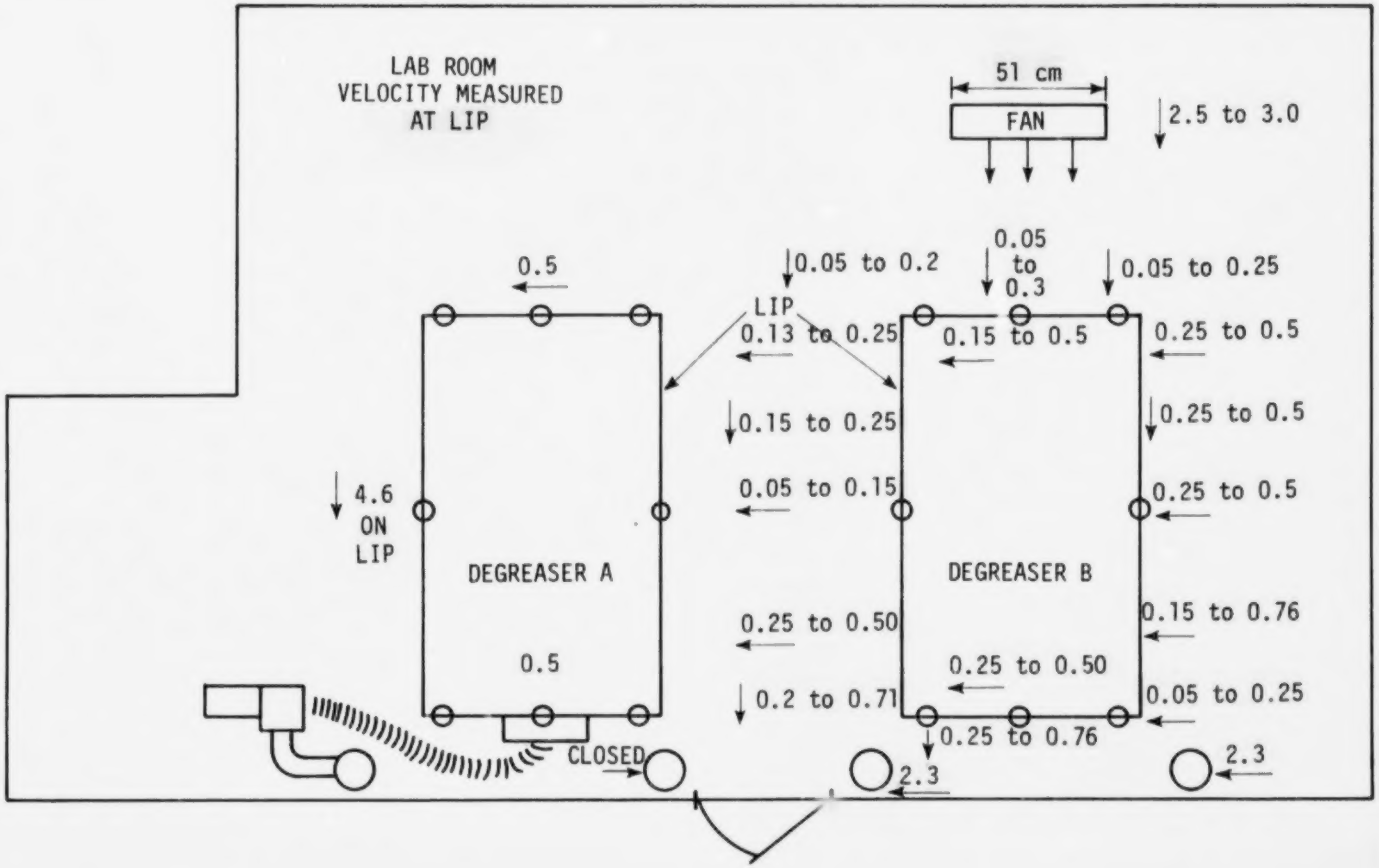


Figure 8. Increased air velocity and lip exhaust during Test 72.
(measured in m/s)

room. Degreaser A was equipped with an add-on exhaust system for the purpose of collecting data on unrecovered solvent loss. The two exhaust rates of 0.25 and 0.50 m^3/s per m^2 (50 and 100 ft^3/min per ft^2) of degreaser top area were tested.

TEST PROCEDURE

Individual experiments were conducted randomly on idle degreasers with no boiling solvent, on idle degreasers with boiling solvent, and on operating degreasers. When the TE tests were completed, the MC tests followed. Two degreasers were operated simultaneously during each test to provide either a repetition or a comparison of data under the same conditions. Each experiment was conducted for a preset time period of 8 to 24 hours, as defined in the test plan.

The cycle time of degreaser operation in all the tests was 6.5 minutes. Table 3 presents the cycle time distribution for each experiment.

TABLE 3. TYPICAL CYCLE TIME DISTRIBUTION

Time interval	Action
30 seconds	Load descent
3 minutes and 30 seconds	Load cleaning
30 seconds	Load ascent
20 seconds	Pause
60 seconds	Load cooling
15 seconds	Air flushing of load
25 seconds	Pause

Continuous measurements were made of degreaser weights, solvent concentrations, air velocity, solvent temperature, water and electricity input to the degreasers, and ambient conditions. For tests of idle degreasers, only initial and final readings were noted. In addition to measurements of total solvent consumption during the tests, measurements of solvent concentration at the top of the degreasers were made with an infrared (IR) unit.

After the machines reached full vapor level, they were left undisturbed (without load operation) for 30 minutes to allow the solvent vapor and cold air blanket to reach equilibrium. Then the hoists were turned on so that the load would be brought in and out continuously for cleaning, and the data were recorded again. This marked the beginning of the 24-hour test period.

Checklist

The following checklist of the test procedure was adopted for each test. All the test data were entered into a well-maintained record book for each test. Figure 9 is a blank hourly data sheet from a record book.

Beginning of the Day--

Before the start of each experiment, check thoroughly for electrical problems and for leaks in the solvent and water systems. Check for conditions that might have an effect on the weighing procedure (such as misplaced tools on degreasers).

At the beginning and at the end of each test, inspect the water separators for water buildup. Any accumulation of water in the separator could be attributed to condensation on the primary condenser and on the refrigerated freeboard chiller. The water separator on Degreaser A can be inspected simply by opening the lid and making a visual check. The water separator on Degreaser B must be drained into a bucket and the contents checked.

1. Turn up humidistat and turn on ventilation fan.

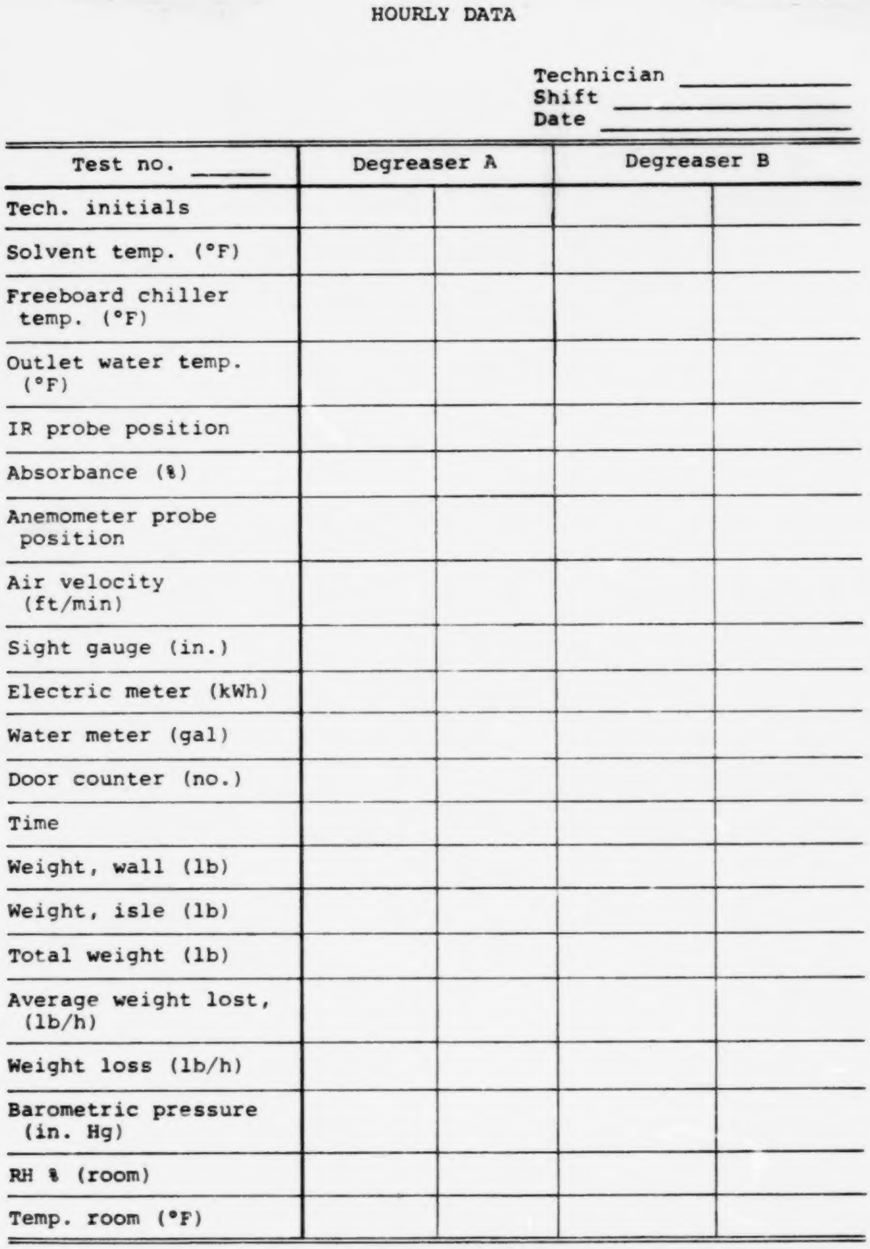
2. Turn on instrumentation and calibrate IR analyzer, and note time on chart. Turn on temperature recorder. Turn on velocity recorder.

3. Turn on water pump and bring water system up to pressure.

Beginning of Test--

4. Record weight of degreasers. Record the machine weights when the loads are in the uppermost position before being lowered into the degreasers so that the loads have minimal influence on the machine weights. When the refrigerated freeboard chiller is in use, adjust it to "defrost" just before each weighing period to reduce the effect of condensation and ice buildup.

   Record measurements of room temperature, barometric pressure, relative humidity, and electric and water meter readings for each degreaser. Wipe any condensation off the freeboard sections before taking the weight readings. Take hourly readings of air velocity with an anemometer at the infrared probe being used.



HOURLY DATA

Technician ____________
Shift ____________
Date ____________

Test no. ______	Degreaser A		Degreaser B	
Tech. initials				
Solvent temp. (°F)				
Freeboard chiller temp. (°F)				
Outlet water temp. (°F)				
IR probe position				
Absorbance (%)				
Anemometer probe position				
Air velocity (ft/min)				
Sight gauge (in.)				
Electric meter (kWh)				
Water meter (gal)				
Door counter (no.)				
Time				
Weight, wall (lb)				
Weight, isle (lb)				
Total weight (lb)				
Average weight lost, (lb/h)				
Weight loss (lb/h)				
Barometric pressure (in. Hg)				
RH % (room)				
Temp. room (°F)				

Figure 9. Hourly data sheet from a record book.

Take similar measurements periodically at all designated points to determine the relative air movements around each degreaser and throughout the room.

5. Open degreaser outlet water valve and water supply valve.

6. Turn on heat source (and refrigerated freeboard chillers, lip exhaust fan, and room draft inducing fan, when these units are used) to both degreasers; repeat the data collection.

7. When solvent temperature reaches 66°C (150°F) for 1,1,1-trichloroethane and 32°C (90°F) for methylene chloride, weigh the degreasers and enter first hour data into the record book.

8. When the degreaser reaches equilibrium operation (i.e., full vapor development when solvent starts boiling), weigh the degreasers again and record the data.

9. After one-half hour at equilibrium operation, weigh the degreasers again and record the data. At this time the hoist is started. This reading is the initial reading for the test. Starting now, record all the data (including time, weights, air temperature, velocity, and humidity) each hour. Data on solvent concentrations at the degreasers are continuously recorded on an automatic basis. During the test period, if an upset occurs or something unusual happens, record it and note that time. If the upset is significant the test must be shut down. When using refrigerated freeboard chillers set the defrost to occur before each weighing so that excessive water may be removed from the degreasers before they are weighed.

End of Test--

10. Shut down hoist, refrigerated freeboard chiller, and other ancillary devices and weigh the degreaser. Record all the data including time.

11. Repeat Step 8 and turn off the degreaser.

12. Repeat Step 7.

13. Drain water separators into a graduated cylinder, recording the total and the water/solvent interface (if it exists).

14. Add solvent equivalent to the amount of solvent lost.

15. Make necessary changes if a new test is being started.

Test Shutdown--

16. Turn off fan for exhaust air.

17. Turn off instrumentation.

SECTION 3

TEST RESULTS

PARAMETERS MEASURED

As discussed in Section 2, measurements of degreaser weights, air velocity, ambient conditions, and utilities were manually recorded on an hourly basis for each test. In addition, continuous measurements of solvent concentration were made over the top of the test degreasers with an infrared analyzer. Successive readings were taken at four locations for each degreaser. Sampling probes were located at the midpoint of each side of the degreaser, 5 cm (2 in.) inside and about 15 cm (6 in.) above the lip.

Hourly temperature measurements were made of the solvent, the refrigerated freeboard chiller, and the primary condenser water. Intermittent measurements of cold blanket temperatures were also made for each degreaser during the secondary chiller tests. The degreaser with RFC I had a cold blanket temperature of about 21°C (70°F) when using TE and 18°C (65°F) when using MC; the degreaser with RFC II had cold blanket temperatures of 7°C (45°F) when using TE and -6°C (22°F) when using MC. These temperature measurements were recorded by dipping hand-held thermometers into the blanket for a few minutes.

ANALYSIS OF RESULTS

Actual tests were started the beginning of October 1978 and completed by the end of July 1979. About 100 tests were conducted for the purpose of collecting solvent loss data from the degreasers at various combinations of different variables. The following are the different levels of variables tested:

1. Lid: On and off
2. Freeboard ratio: 50, 75, 100, and 125 percent
3. Refrigerated freeboard chillers: On and off
4. Load cross-sectional area: 50 and 70 percent
5. Hoist speed: 0.04 and 0.08 m/s (8 and 16 ft/min)

6. Crosscurrent air velocity over degreasers: 0.10, 0.26, and 0.43 m/s (20, 52, and 84 ft/min)

7. Lip exhaust: On and off

8. Solvent type: 1,1,1-Trichloroethane (TE) and methylene chloride (MC).

Ambient conditions may affect the rate of solvent loss from an open-top vapor degreaser; exact simulation of the same ambient conditions at a later date is very difficult, even in a controlled environment. Test repetitions were thus accomplished by testing two degreasers of the same physical dimensions, rather than by testing one degreaser at different times.

Hourly solvent loss from the degreaser was the principal measurement obtained. Solvent loss occurs in two ways: drag-out loss caused by load movement, and loss by diffusion into ambient air. Because it is difficult to measure each loss individually, hourly weights were taken to establish an hourly solvent loss rate. Cumulative hourly solvent loss weights over the entire test period were plotted to obtain a regression line. Data during startup and shutdown were excluded from the regression plot. The slope of the regression line determined the solvent loss rate. On idle degreaser tests, however, the degreaser solvent loss rates were established from data collected at the beginning and end of an 8- to 40-hour run. Many of these tests were repeated. Detailed summaries of test results are presented in tabular form in the appendices. The data are based on tests conducted while the degreasers were operating for 8 to 24 hours.

Methodology

Degreaser A and Degreaser B were used whenever possible for each test. Because they had almost identical specifications, the two degreasers were expected to yield similar solvent loss results under the same test conditions. Although Degreasers A and B differed slightly in physical condition, the difference in the solvent loss results from the two degreasers was not statistically significant. The two solvents, on the other hand, differed to an extreme degree, but the difference found on the basis of solvent used was not statistically significant (see Appendix D).

The results indicated that under given test conditions the solvent loss rate from a degreaser is a range, not an absolute number. The ranges from two degreasers having the same specifications may or may not overlap.

Evaluations of degreaser modifications were based on ranges of solvent loss rates. The overall range for each test was established by using the two degreaser readings as the extremes of the range (most of the tests were conducted only once). For the tests that were repeated, averages of readings for each degreaser were used as extremes of the range.

A typical degreaser with no controls was established as a base case, and the capability of a modification to reduce solvent loss was measured against it. A typical degreaser consists of 50 percent freeboard ratio, uses a load area of 50 percent, and has no refrigerated freeboard chiller. Because solvent loss for a given condition varies, the solvent loss reduction capability of a modification varies accordingly.

The solvent loss reduction capability of the base case was set at zero. The range of solvent loss reduction of a particular modification was established for each degreaser by subtracting the solvent loss resulting from that condition from the solvent loss for the base case.

Tables 4 through 27 present the test results on the basis of the various modifications and operating conditions. The tables show the absolute solvent loss rate from each degreaser under given test conditions. They also show the corresponding decrease or increase in solvent loss under those conditions when compared with the base case. The base case in each table is represented by a zero decrease (or increase) in solvent loss. (Inconsistencies appear in the SI series of tables because the values have been directly converted from English units of measure. These inconsistencies are minor and do not affect the significance of the data that are presented.)

Solvent Loss Data

Figures 10 through 31 show the solvent loss reduction capability of the modifications tested. The data are the same as those presented in tabular form in Tables 4 through 27. In the figures, each modification is evaluated by comparison with the appropriate base case. The base case is always represented by a zero percent solvent loss reduction capability. In Figure 10 for example, the modification evaluated is lid position; the two conditions tested are lid open or closed. The open position is held as the base case, and the closed position is compared with it.

Effect of Lid--

Effectiveness of the lid or cover is assessed in Figures 10, 11, 20, and 21. For idle degreasers holding nonboiling TE, the lid reduced solvent loss from 0 to 40 percent; for idle

TABLE 4. SUMMARY OF SOLVENT LOSS DATA FOR OPERATING DEGREASERS USING 1,1.1,-TRICHLOROETHANE

Test conditions									Solvent loss data					
									Degreaser A			Degreaser B		
										Decrease (Increase) from base case			Decrease (Increase) from base case	
Test group No.[a]	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, m/s	Hoist speed, m/s	Load area, %	kg/h	kg/h	%	kg/h	kg/h	%
1	b	✓	✓	✓		50	0.1	0.04	50	1.04	0	0	1.00	0	0
2	20	✓	✓	✓		50	0.1	0.04	70	1.28	(0.24)	(22.6)	1.04	(0.05)	(4.6)
3	c	✓	✓	✓		75	0.1	0.04	50	0.97	0.07	7.0	0.75	0.24	24.5
4	23	✓	✓	✓		100	0.1	0.04	50	0.55	0.49	47.0	0.47	0.53	53.2
5	29	✓	✓	✓		125	0.1	0.04	70	1.08	(0.03)	(3.0)	0.96	0.04	3.6
6	31[d]	✓	✓	✓		125	0.1	0.04	50	1.03	0.02	1.7	0.70	0.27	30.0
7[e]	15	✓	✓	✓		50	0.1	0.04	50	0.49	0.54	52.6	0.56	0.29	29.5
8[f]	35	✓	✓	✓		50	0.1	0.04	50				0.52	0.48	48.2
9[g]	48	✓	✓	✓		75	0.1	0.04	50	0.20	0.85	81.3	0.20	0.80	80.5
10	35	✓	✓	✓		50	0.1	0.08	50	1.16	(0.11)	(10.9)			
11	33	✓	✓	✓		75	0.1	0.08	50				0.84	0.16	15.9
12	32	✓	✓	✓		100	0.1	0.08	50				0.91	0.09	9.09
13	32	✓	✓	✓		125	0.1	0.08	50	0.84	0.20	19.6			
14	36	✓	✓	✓		50	0.1	0.08	70	1.56	(0.52)	(49.6)			
15	33	✓	✓	✓		125	0.1	0.08	70	1.09	(0.05)	(4.8)			

(continued)

TABLE 4 (continued)

Test conditions										Solvent loss data					
										Degreaser A			Degreaser B		
											Decrease (Increase) from base case			Decrease (Increase) from base case	
Test group No.[a]	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, m/s	Hoist speed, m/s	Load area, %	kg/h	kg/h	%	kg/h	kg/h	%
16	h	✓	✓	✓	✓	50	0.1	0.04	50	0.99	0.05	5.21	0.92	0.08	7.70
17	i	✓	✓	✓	✓	75	0.1	0.04	50	0.96	0.09	8.3	0.82	0.18	18.20
18	30	✓	✓	✓	✓	125	0.1	0.04	50	0.68	0.36	34.8	0.53	0.47	47.30
19	26	✓	✓	✓	✓	50	0.1	0.04	70				0.86	0.14	14.10
20	28	✓	✓	✓	✓	125	0.1	0.04	70	0.76	0.29	27.0	0.66	0.33	33.64
21[j]	88	✓	✓	✓	✓	50	0.1	0.04	50				0.98	0.02	1.80
22	86	✓	✓	✓	✓	75	0.1	0.04	50				0.54	0.45	45.5
23	87	✓	✓	✓	✓	125	0.1	0.04	50				0.49	0.51	51.0

[a] Test group represents one or more tests.

[b] Based on results from tests 1, 6, 7, 8, and 89.

[c] Based on results from tests 22, 48, 84, 87, and 90.

[d] Hot load was used throughout the test.

[e] Top was closed one half hour between each load cycle.

[f] Top was left open one half hour between each load cycle.

[g] Smaller Degreaser C (0.35 m^2 top opening) was used.

[h] Based on results from tests 11, 14, 19, 25, 34, and 88 for Degreaser A; 19, 25, and 34 for Degreaser B.

[i] Based on results from tests 18 and 86 for Degreaser A; test 18 for Degreaser B.

[j] Test groups 21, 22, and 23 were repeated with RFC II operating at temperatures between -29° and -40°C.

TABLE 5. SUMMARY OF SOLVENT LOSS DATA FOR OPERATING DEGREASERS USING 1,1,1-TRICHLOROETHANE (English units)

Test conditions										Solvent loss data					
										Degreaser A			Degreaser B		
											Decrease (Increase) from base case			Decrease (Increase) from base case	
Test group No.[a]	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, ft/min	Hoist speed, ft/min	Load area, %	lb/h	lb/h	%	lb/h	lb/h	%
1	b	✓	✓	✓		50	20	8	50	2.30	0	0	2.20	0	0
2	20	✓	✓	✓		50	20	8	70	2.82	(0.52)	(22.6)	2.30	(0.10)	(4.6)
3	c	✓	✓	✓		75	20	8	50	2.14	0.16	7.0	1.66	0.54	24.5
4	23	✓	✓	✓		100	20	8	50	1.22	1.08	47.0	1.03	1.17	53.2
5	29	✓	✓	✓		125	20	8	70	2.37	(0.07)	(3.0)	2.12	0.08	3.6
6	31[d]	✓	✓	✓		125	20	8	50	2.26	0.04	1.7	1.54	0.66	30.0
7[e]	15	✓	✓	✓		50	20	8	50	1.09	1.21	52.6	1.24	0.65	29.5
8[f]	35	✓	✓	✓		50	20	8	50				1.14	1.06	48.2
9[g]	48	✓	✓	✓		75	20	8	50	0.43	1.87	81.3	0.43	1.77	80.5
10	35	✓	✓	✓		50	20	16	50	2.55	(0.25)	(10.9)			
11	33	✓	✓	✓		75	20	16	50				1.85	0.35	15.9
12	32	✓	✓	✓		100	20	16	50				2.0	0.20	9.1
13	32	✓	✓	✓		125	20	16	50	1.85	0.45	19.6			
14	36	✓	✓	✓		50	20	16	70	3.44	(1.14)	(49.6)			
15	33	✓	✓	✓		125	20	16	70	2.41	(0.11)	(4.8)			

(continued)

TABLE 5 (continued)

Test conditions										Solvent loss data					
										Degreaser A			Degreaser B		
											Decrease (Increase) from base case			Decrease (Increase) from base case	
Test group No.[a]	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. freeboard chiller	Freeboard ratio, %	Air velocity at lip, ft/min	Hoist speed, ft/min	Load area, %	lb/h	lb/h	%	lb/h	lb/h	%
16	h	✓	✓	✓	✓	50	20	8	50	2.18	0.12	5.2	2.03	0.17	7.7
17	i	✓	✓	✓	✓	75	20	8	50	2.11	0.19	8.3	1.80	0.40	18.2
18	30	✓	✓	✓	✓	125	20	8	50	1.50	0.80	34.8	1.16	1.04	47.3
19	26	✓	✓	✓	✓	50	20	8	70				1.89	0.31	14.1
20	28	✓	✓	✓	✓	125	20	8	70	1.68	0.62	27.0	1.46	0.74	33.6
21[j]	88	✓	✓	✓	✓	50	20	8	50				2.16	0.04	1.8
22	86	✓	✓	✓	✓	75	20	8	50				1.20	1.0	45.5
23	87	✓	✓	✓	✓	125	20	8	50				1.08	1.12	51.0

[a] Test group represent one or more tests.

[b] Based on results from tests 1, 6, 7, 8, and 89.

[c] Based on results from tests 22, 48, 84, 87, and 90.

[d] Hot load was used throughout the test.

[e] Top was closed one half hour between each load cycle.

[f] Top was left open one half hour between each load cycle.

[g] Smaller Degreaser C (3.78 ft^2 top opening) was used.

[h] Based on results from tests 11, 14, 19, 25, 34, and 88 for Degreaser A; 19, 25, and 34 for Degreaser B.

[i] Based on results from tests 18 and 86 for Degreaser A and test 18 for Degreaser B.

[j] Test groups 21, 22, and 23 were repeated with RFC II operating at temperatures between -20 and -40°F.

TABLE 6. SUMMARY OF SOLVENT LOSS DATA FOR IDLE DEGREASERS USING 1,1,1-TRICHLOROETHANE

Test conditions										Solvent loss data					
										Degreaser A			Degreaser B		
											Decrease (Increase) from base case			Decrease (Increase) from base case	
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, m/s	Hoist speed, m/s	Load area, %	kg/h	kg/h	%	kg/h	kg/h	%
24	9	✓	✓	✓		50	0.1	0	0	0.82	0	0	0.43	0	0
25	2					50	0.1	0	0	0.05	0.77	94.6	0.05	0.38	89.4
26	13		✓	✓		50	0.1	0	0	0.32	0.50	61.1	0.40	0.03	6.4
27	a	✓				50	0.1	0	0	0.05	0.76	93.3	0.03	0.39	92.4
28	b	✓	✓	✓	✓	50	0.1	0	0	0.66	0.16	19.6	0.90	(0.48)	(111.7)
29	17	✓	✓	✓	✓	75	0.1	0	0	0.49	0.33	40.6	0.30	0.13	29.8
30	92	✓		✓		50	0.1	0	0	0.12	0.70	85.6	0.07	0.36	84.0
31	92			✓		50	0.1	0	0						
32	91			✓		50	0.1	0	0	0.07	0.74	91.1	0.07	0.36	84.0
33	91	✓		✓		50	0.1	0	0						

[a] Based on results from tests 3, 4, and 5.

[b] Based on results from tests 10 and 16.

TABLE 7. SUMMARY OF SOLVENT LOSS DATA FOR IDLE DEGREASERS USING 1,1,1-TRICHLOROETHANE (English units)

Test conditions										Solvent loss data					
										Degreaser A			Degreaser B		
											Decrease (Increase) from base case			Decrease (Increase) from base case	
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, ft/min	Hoist speed, ft/min	Load area, %	lb/h	lb/h	%	lb/h	lb/h	%
24	9	✓	✓	✓		50	20	0	0	1.80	0	0	0.94	0	0
25	2					50	20	0	0	0.10	1.70	94.6	0.10	0.84	89.4
26	3		✓	✓		50	20	0	0	0.70	1.10	61.1	0.88	0.06	6.4
27	[a]	✓				50	20	0	0	0.12	1.68	93.3	0.07	0.87	92.4
28	[b]	✓	✓	✓	✓	50	20	0	0	1.45	0.35	19.6	1.99	(1.05)	(111.7)
29	17	✓	✓	✓	✓	75	20	0	0	1.07	0.73	40.6	0.66	0.28	29.8
30	92	✓		✓		50	20	0	0	0.26	1.54	85.6			
31	92			✓		50	20	0	0				0.15	0.79	84.0
32	91			✓		50	20	0	0	0.16	1.64	91.1			
33	91	✓		✓		50	20	0	0				0.15	0.79	84.0

[a] Based on results from tests 3, 4, and 5.

[b] Based on results from tests 10 and 16.

TABLE 8. SUMMARY OF SOLVENT LOSS DATA FOR OPERATING DEGREASERS AT 0.08 m/s-HOIST SPEED AND USING 1,1,1-TRICHLOROETHANE

Test conditions										Solvent loss data					
										Degreaser A			Degreaser B		
											Decrease (Increase) from base case			Decrease (Increase) from base case	
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. freeboard chiller	Freeboard ratio, %	Air velocity at lip, m/s	Hoist speed, m/s	Load area, %	kg/h	kg/h	%	kg/h	kg/h	%
10	35	✓	✓	✓		50	0.1	0.08	50	1.16	0	0	1.16^a	0	0
11	33	✓	✓	✓		75	0.1	0.08	50				0.84	0.32	27.5
12	32	✓	✓	✓		100	0.1	0.08	50				0.91	0.25	21.6
13	32	✓	✓	✓		125	0.1	0.08	50	0.84	0.32	27.5			
14	36	✓	✓	✓		50	0.1	0.08	70	1.56	(0.40)	(34.9)			
15	33	✓	✓	✓		125	0.1	0.08	70	1.09	0.06	5.5			

[a] Degreaser B was not used during this test; the solvent loss rate for Degreaser A is also used for Degreaser B.

TABLE 9. SUMMARY OF SOLVENT LOSS DATA FOR OPERATING DEGREASERS OPERATING AT 16-ft/min HOIST SPEED AND USING 1,1,1-TRICHLOROETHANE (English units)

Test conditions										Solvent loss data					
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, ft/min	Hoist speed, ft/min	Load area, %	Degreaser A			Degreaser B		
										lb/h	Decrease (Increase) from base case		lb/h	Decrease (Increase) from base case	
											lb/h	%		lb/h	%
10	35	✓	✓	✓		50	20	16	50	2.55	0	0	2.55[a]	0	0
11	33	✓	✓	✓		75	20	16	50				1.85	0.70	27.5
12	32	✓	✓	✓		100	20	16	50				2.0	0.55	21.6
13	32	✓	✓	✓		125	20	16	50	1.85	0.70	27.5			
14	36	✓	✓	✓		50	20	16	70	3.44	(0.89)	(34.9)			
15	33	✓	✓	✓		125	20	16	70	2.41	(0.14)	(5.50)			

[a] Degreaser B was not used during this test; the solvent loss rate for Degreaser A is also used for Degreaser B.

TABLE 10. SUMMARY OF SOLVENT LOSS DATA FOR OPERATING DEGREASERS USING 1,1,1-TRICHLOROETHANE AND 70 PERCENT LOAD AREA

Test conditions										Solvent loss data					
										Degreaser A			Degreaser B		
											Decrease (Increase) from base case			Decrease (Increase) from base case	
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. freeboard chiller	Freeboard ratio, %	Air velocity at lip, m/s	Hoist speed, m/s	Load area, %	kg/h	kg/h	%	kg/h	kg/h	%
2	20	✓	✓	✓		50	0.1	0.04	70	1.28	0	0	1.04	0	0
5	29	✓	✓	✓		125	0.1	0.04	70	1.08	0.20	16.0	0.96	0.08	7.8
14	36	✓	✓	✓		50	0.1	0.08	70	1.56	(0.28)	(22.0)			
15	33	✓	✓	✓		125	0.1	0.08	70	1.69	(0.19)	(14.5)			
19	26	✓	✓	✓	✓	50	0.1	0.04	70				0.86	0.19	17.8
20	28	✓	✓	✓	✓	125	0.1	0.04	70	0.76	0.52	40.4	0.66	0.38	36.5

TABLE 11. SUMMARY OF SOLVENT LOSS DATA FOR OPERATING DEGREASERS USING 1,1,1-TRICHLOROETHANE AND 70 PERCENT LOAD AREA
(English units)

Test conditions										Solvent loss data					
										Degreaser A			Degreaser B		
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, ft/min	Hoist speed, ft/min	Load area, %	lb/h	Decrease (Increase) from base case		lb/h	Decrease (Increase) from base case	
											lb/h	%		lb/h	%
2	20	✓	✓	✓		50	20	8	70	2.82	0	0	2.30	0	0
5	29	✓	✓	✓		125	20	8	70	2.37	0.45	16.0	2.12	0.18	7.8
14	36	✓	✓	✓		50	20	16	70	3.44	(0.62)	(22.0)			
15	33	✓	✓	✓		125	20	16	70	2.41	0.41	14.5			
19	26	✓	✓	✓	✓	50	20	8	70				1.89	0.41	17.8
20	28	✓	✓	✓	✓	125	20	8	70	1.68	1.14	40.4	1.46	0.84	36.5

TABLE 12. SUMMARY OF SOLVENT LOSS DATA FOR OPERATING DEGREASERS WITH REFRIGERATED FREEBOARD CHILLERS USING 1,1,1-TRICHLOROETHANE

Test conditions										Solvent loss data					
										Degreaser A			Degreaser B		
											Decrease (Increase) from base case			Decrease (Increase) from base case	
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, m/s	Hoist speed, m/s	Load area, %	kg/h	kg/h	%	kg/h	kg/h	%
16	a	✓	✓	✓	✓	50	0.1	0.04	50	0.99	0	0	0.92	0	0
17	b	✓	✓	✓	✓	75	0.1	0.04	50	0.96	0.03	3.21	0.82	0.1	11.3
18	30	✓	✓	✓	✓	125	0.1	0.04	50	0.68	0.31	31.2	0.53	0.39	42.9
19	26	✓	✓	✓	✓	50	0.1	0.04	70				0.86	0.06	6.9
20	28	✓	✓	✓	✓	125	0.1	0.04	70	0.76	0.23	22.9	0.66	0.26	28.1
21[c]	88	✓	✓	✓	✓	50	0.1	0.04	50				0.98	(0.06)	(6.4)
22	86	✓	✓	✓	✓	75	0.1	0.04	50				0.54	0.38	41.0
23	87	✓	✓	✓	✓	125	0.1	0.04	50				0.49	0.47	51.2
28	d	✓	✓	✓	✓	50	0.1	0	0	0.66	0.33	33.5	0.90	0.02	2.0
29	17	✓	✓	✓	✓	75	0.1	0	0	0.49	0.50	50.9	0.30	0.62	67.5

[a] Based on results of tests 11, 14, 19, 25, 34, and 89 for Degreaser A; 19, 25, 34, and 89 for Degreaser B.

[b] Based on results of tests 18 and 86.

[c] Test groups 21, 22, and 23 were repeated with RFC II operating at temperatures between -29° and -40°C.

[d] Based on results of tests 10 and 16.

TABLE 13. SUMMARY OF SOLVENT LOSS DATA FOR OPERATING DEGREASERS WITH REFRIGERATED FREEBOARD CHILLERS USING 1,1,1-TRICHLOROETHANE (English units)

Test conditions										Solvent loss data					
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. freeboard chiller	Freeboard ratio, %	Air velocity at lip, ft/min	Hoist speed, ft/min	Load area, %	Degreaser A			Degreaser B		
										lb/h	Decrease (Increase) from base case		lb/h	Decrease (Increase) from base case	
											lb/h	%		lb/h	%
16	a	✓	✓	✓	✓	50	20	8	50	2.18	C	0	2.03	0	0
17	b	✓	✓	✓	✓	75	20	8	50	2.11	0.07	3.21	1.80	0.23	11.3
18	30	✓	✓	✓	✓	125	20	8	50	1.50	0.68	31.2	1.16	0.87	42.9
19	26	✓	✓	✓	✓	50	20	8	70				1.89	0.14	6.9
20	28	✓	✓	✓	✓	125	20	8	70	1.68	0.50	22.9	1.46	0.57	28.1
21[c]	88	✓	✓	✓	✓	50	20	8	50				2.16	(0.13)	(6.4)
22	86	✓	✓	✓	✓	75	20	8	50				1.20	0.83	41.0
23	87	✓	✓	✓	✓	125	20	8	50				1.08	1.04	51.2
28	d	✓	✓	✓	✓	50	20	0	0	1.45	0.73	33.5	1.99	0.04	(2.0)
29	17	✓	✓	✓	✓	75	20	0	0	1.07	1.11	50.9	0.66	1.37	67.5

[a] Based on results of tests 11, 14, 19, 25, 34, and 89 for Degreaser A; 19, 25, 34, and 89 for Degreaser B.

[b] Based on results of tests 18 and 86.

[c] Test groups 21, 22, and 23 were repeated with RFC II operating at temperatures between -20° and -40°F.

[d] Based on results of tests 10 and 16.

TABLE 14. SUMMARY OF SOLVENT LOSS DATA FOR DIFFERENT SIZE DEGREASERS USING 1,1,1-TRICHLOROETHANE

Test conditions										Solvent loss data					
										Degreaser A			Degreaser B		
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. freeboard chiller	Freeboard ratio, %	Air velocity at lip, m/s	Hoist speed, m/s	Load area, %	kg/h	Decrease (Increase) from base case		kg/h	Decrease (Increase) from base case	
											kg/h	%		kg/h	%
9[a]	48	✓	✓	✓		75	0.1	0.04	50	0.19[b]	0	0	0.19	0	0
3	c	✓	✓	✓		75	0.1	0.04	50	0.97[d]	(0.78)	(400)	0.75[e]	(0.56)	(288)

[a] Smaller Degreaser C (0.35 m^2 top opening) was used for this test.

[b] Solvent loss rate 0.005 kg/m^2 per h.

[c] Based on results from tests 22, 48, 84, 87, and 90.

[d] Solvent loss rate 0.006 kg/m^2 per h.

[e] Solvent loss rate 0.0045 kg/m^2 per h.

TABLE 15. SUMMARY OF SOLVENT LOSS DATA FOR DIFFERENT SIZE DEGREASERS USING 1,1,1-TRICHLOROETHANE
(English units)

Test conditions										Solvent loss data					
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. freeboard chiller	Freeboard ratio, %	Air velocity at lip, ft/min	Hoist speed, ft/min	Load area, %	Degreaser A			Degreaser B		
										lb/h	Decrease (Increase) from base case		lb/h	Decrease (Increase) from base case	
											lb/h	%		lb/h	%
9[a]	48	✓	✓	✓		75	20	8	50	0.43[b]	0	0	0.43[b]	0	0
3	c	✓	✓	✓		75	20	8	50	2.14[d]	(1.71)	(400.0)	1.66[e]	(1.23)	(288.0)

[a] Smaller Degreaser C (3.78 ft^2 top opening) was used for this test.

[b] Solvent loss rate 0.113 lb/ft^2 per h.

[c] Based on results from tests 22, 48, 84, 87, and 90.

[d] Solvent loss rate 0.143 lb/ft^2 per h.

[e] Solvent loss rate 0.110 lb/ft^2 per h.

TABLE 16. SUMMARY OF SOLVENT LOSS DATA FOR OPERATING DEGREASERS USING METHYLENE CHLORIDE

Test conditions										Solvent loss data					
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, m/s	Hoist speed, m/s	Load area, %	Degreaser A			Degreaser B		
										kg/h	Decrease (Increase) from base case		kg/h	Decrease (Increase) from base case	
											kg/h	%		kg/h	%
34	37	✓	✓	✓		50	0.1	0.04		0.78	0	0	1.05	0	0
35	74	✓	✓	✓		75	0.1	0.04		0.61	0.17	21.6	0.87	0.18	17.2
36	41	✓	✓	✓		125	0.1	0.04		0.59	0.19	24.6	0.78	0.28	26.3
37	39	✓	✓	✓		50	0.1	0.04		1.17	(0.40)	(51.5)	1.61	(0.56)	(53.0)
38	43	✓	✓	✓		125	0.1	0.04		0.70	0.07	9.4	0.97	0.08	7.8
39	46	✓	✓	✓		50	0.25[a]	0.04		1.63	(0.86)	(111)			
40	45	✓	✓	✓		50	0.50[a]	0.04		1.93	(1.14)	(147)			
41	46	✓	✓	✓		50	0.1	0.04					0.98	0.07	6.9
42	47	✓	✓	✓		50	0.26[b]	0.04					2.22	(1.18)	(112)
43	38	✓	✓	✓	✓	50	0.1	0.04		0.88	(0.1)	(13.5)	0.89	0.16	15.5
44	75	✓	✓	✓	✓	75	0.1	0.04		0.73	0.05	6.4	0.59	0.49	47.0
45	42	✓	✓	✓	✓	125	0.1	0.04		0.59	0.19	24.6	0.41	0.64	61.2
46	40	✓	✓	✓	✓	50	0.1	0.04		1.08	(0.30)	(38.6)	1.10	(0.05)	(5.2)
47	44	✓	✓	✓	✓	125	0.1	0.04		0.60	0.17	22.2	0.59	0.47	44.4

[a] Lip exhaust rate in units m^3/s per m^2 of open top area.

[b] Crosscurrent test at 0.26 m/s.

TABLE 17. SUMMARY OF SOLVENT LOSS DATA FOR OPERATING DEGREASERS USING METHYLENE CHLORIDE (English units)

Test conditions										Solvent loss data					
										Degreaser A			Degreaser B		
											Decrease (Increase) from base case			Decrease (Increase) from base case	
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, ft/min	Hoist speed, ft/min	Load area, %	lb/h	lb/h	%	lb/h	lb/h	%
34	37	✓	✓	✓		50	20	8	50	1.71	0	0	2.32	0	0
35	74	✓	✓	✓		75	20	8	50	1.34	0.37	21.6	1.92	0.40	17.2
36	41	✓	✓	✓		125	20	8	50	1.29	0.42	24.6	1.71	0.61	26.3
37	39	✓	✓	✓		50	20	8	70	2.59	(0.88)	(51.5)	3.55	(1.23)	(53.0)
38	43	✓	✓	✓		125	20	8	70	1.55	0.16	9.4	2.14	0.18	7.8
39	46	✓	✓	✓		50	50[a]	8	50	3.60	(1.89)	(111)			
40	45	✓	✓	✓		50	100[a]	8	50	4.26	(2.51)	(147)			
41	46	✓	✓	✓		50	20	8	50				2.16	0.16	6.9
42	47	✓	✓	✓		50	52[b]	8	50				4.90	(2.60)	(112)
43	38	✓	✓	✓	✓	50	20	8	50	1.94	(0.23)	(13.5)	1.96	0.36	15.5
44	75	✓	✓	✓	✓	75	20	8	50	1.60	0.11	6.4	1.3	1.09	47.0
45	42	✓	✓	✓	✓	125	20	8	50	1.29	0.42	24.6	0.90	1.42	61.2
46	40	✓	✓	✓	✓	50	20	8	70	2.37	(0.66)	(38.6)	2.44	(0.12)	(5.2)
47	44	✓	✓	✓	✓	125	20	8	70	1.33	0.38	22.2	1.29	1.03	44.4

[a] Lip exhaust rate in units of ft^3/min per ft^2 of open top area.

[b] Crosscurrent test at 52 ft/min.

TABLE 18. SUMMARY OF SOLVENT LOSS DATA FOR OPERATING DEGREASERS USING METHYLENE CHLORIDE AND 70 PERCENT LOAD AREA

Test conditions										Solvent loss data					
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, m/s	Hoist speed, m/s	Load area, %	Degreaser A			Degreaser B		
										kg/h	Decrease (Increase) from base case		kg/h	Decrease (Increase) from base case	
											kg/h	%		kg/h	%
37	39	✓	✓	✓		50	0.1	0.04	70	1.17	0	0	1.61	0	0
38	43	✓	✓	✓		125	0.1	0.04	70	0.70	0.47	40.2	0.97	0.64	39.7
46	40	✓	✓	✓	✓	50	0.1	0.04	70	1.08	0.10	8.2	1.10	0.51	31.8
47	44	✓	✓	✓	✓	125	0.1	0.04	70	0.60	0.57	48.6	0.59	1.03	63.7

TABLE 19. SUMMARY OF SOLVENT LOSS DATA FOR OPERATING DEGREASERS USING METHYLENE CHLORIDE AND 70 PERCENT LOAD AREA
(English units)

Test conditions										Solvent loss data					
										Degreaser A			Degreaser B		
											Decrease (Increase) from base case			Decrease (Increase) from base case	
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. freeboard chiller	Freeboard ratio, %	Air velocity at lip, ft/min	Hoist speed, ft/min	Load area, %	lb/h	lb/h	%	lb/h	lb/h	%
37	39	✓	✓	✓		50	20	8	70	2.59	0	0	3.55	0	0
38	43	✓	✓	✓		125	20	8	70	1.55	1.04	40.2	2.14	1.41	39.7
46	40	✓	✓	✓	✓	50	20	8	70	2.37	0.21	8.2	2.44	1.13	31.8
47	44	✓	✓	✓	✓	125	20	8	70	1.33	1.26	48.6	1.29	2.26	63.7

TABLE 20. SUMMARY OF SOLVENT LOSS DATA FOR OPERATING DEGREASERS WITH REFRIGERATED FREEBOARD CHILLERS USING METHYLENE CHLORIDE

Test conditions										Solvent loss data					
										Degreaser A			Degreaser B		
											Decrease (Increase) from base case			Decrease (Increase) from base case	
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, m/s	Hoist speed, m/s	Load area, %	kg/h	kg/h	%	kg/h	kg/h	%
43	38	✓	✓	✓	✓	50	0.1	0.04	50	0.88	0	0	0.89	0	0
44	75	✓	✓	✓	✓	75	0.1	0.04	50	0.73	0.15	17.5	0.59	0.30	33.7
45	42	✓	✓	✓	✓	125	0.1	0.04	50	0.59	0.29	33.5	0.41	0.48	54.1
46	40	✓	✓	✓	✓	50	0.1	0.04	70	1.08	(0.20)	(22.2)	1.10	(0.22)	(24.5)
47	44	✓	✓	✓	✓	125	0.1	0.04	70	0.60	0.28	31.4	0.59	0.30	34.2

TABLE 21. SUMMARY OF SOLVENT LOSS DATA FOR OPERATING DEGREASERS WITH REFRIGERATED FREEBOARD CHILLERS USING METHYLENE CHLORIDE
(English units)

Test conditions										Solvent loss data					
										Degreaser A			Degreaser B		
											Decrease (Increase) from base case			Decrease (Increase) from base case	
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, ft/min	Hoist speed, ft/min	Load area, %	lb/h	lb/h	%	lb/h	lb/h	%
43	38	✓	✓	✓	✓	50	20	8	50	1.94	0	0	1.96	0	0
44	75	✓	✓	✓	✓	75	20	8	50	1.60	0.34	17.5	1.30	0.66	33.7
45	42	✓	✓	✓	✓	125	20	8	50	1.29	0.65	33.5	0.90	1.06	54.1
46	40	✓	✓	✓	✓	50	20	8	70	2.37	(0.43)	(22.2)	2.44	(0.48)	(24.5)
47	44	✓	✓	✓	✓	125	20	8	70	1.33	0.61	31.4	1.29	0.67	34.2

TABLE 22. SUMMARY OF SOLVENT LOSS DATA FOR OPERATING DEGREASERS WITH REFRIGERATED FREEBOARD CHILLERS USING METHYLENE CHLORIDE AND USING 70 PERCENT LOAD AREA

Test conditions										Solvent loss data					
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, m/s	Hoist speed, m/s	Load area, %	Degreaser A			Degreaser B		
										kg/h	Decrease (Increase) from base case		kg/h	Decrease (Increase) from base case	
											kg/h	%		kg/h	%
46	40	✓	✓	✓	✓	50	0.1	0.04	70	1.08	0	0	1.11	0	0
47	44	✓	✓	✓	✓	125	0.1	0.04	70	0.60	0.47	43.9	0.59	0.52	51.8

TABLE 23. SUMMARY OF SOLVENT LOSS DATA FOR OPERATING DEGREASERS WITH REFRIGERATED FREEBOARD CHILLERS USING METHYLENE CHLORIDE AND USING 70 PERCENT LOAD AREA
(English units)

Test conditions										Solvent loss data					
										Degreaser A			Degreaser B		
											Decrease (Increase) from base case			Decrease (Increase) from base case	
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, ft/min	Hoist speed, ft/min	Load area, %	lb/h	lb/h	%	lb/h	lb/h	%
46	40	✓	✓	✓	✓	50	20	8	70	2.37	0	0	2.44	0	0
47	44	✓	✓	✓	✓	125	20	8	70	1.33	1.04	43.9	1.29	1.15	51.8

TABLE 24. SUMMARY OF SOLVENT LOSS DATA FOR IDLE DEGREASERS USING METHYLENE CHLORIDE

Test conditions										Solvent loss data					
										Degreaser A			Degreaser B		
											Decrease (Increase) from base case			Decrease (Increase) from base case	
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. freeboard chiller	Freeboard ratio, %	Air velocity at lip, m/s	Hoist speed, m/s	Load area, %	kg/h	kg/h	%	kg/h	kg/h	%
48	a	✓	✓	✓		50	0.1	0	0	0.44	0	0	0.54	0	0
49	51		✓	✓		50	0.1	0	0	0.29	0.15	35.0	0.36	0.18	33.6
50	64	✓	✓	✓		75	0.1	0	0	0.33	0.10	25.5	0.48	0.06	11.7
51	65	✓	✓	✓		100	0.1	0	0	0.38	0.06	14.3	0.43	0.11	20.2
52	69	✓	✓	✓		125	0.1	0	0	0.36	0.08	18.4	0.55	(0.01)	(2.52)
53	b	✓	✓	✓	✓	50	0.1	0	0	0.64	(0.19)	(42.9)	0.32	0.20	37.0
54	67	✓	✓	✓	✓	100	0.1	0	0	0.32	0.12	27.6	0.23	0.29	53.8
55	72	✓	✓	✓		50	0.26^c	0	0				3.76	(3.23)	(597)
56	72	✓	✓	✓		50	0.50^d	0	0	2.31	(1.86)	(419)			
57	76	✓	✓	✓		75	0.25^d	0	0	0.75	(0.31)	(69.3)			
58	77	✓	✓	✓		75	0.50^d	0	0	0.98	(0.53)	(119)			
59	77	✓	✓	✓		75	0.26^c	0	0				2.23	(1.69)	(313)
60	61	✓				50	0.1	0	0	0.23	0.21	48	0.22	0.32	59.7
61	d	✓		✓		50	0.1	0	0	0.20	0.24	55.1	0.15	0.39	73.1

(continued)

TABLE 24 (continued)

Test conditions										Solvent loss data					
										Degreaser A			Degreaser B		
											Decrease (Increase) from base case			Decrease (Increase) from base case	
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, m/s	Hoist speed, m/s	Load area, %	kg/h	kg/h	%	kg/h	kg/h	%
62	78			✓		50	0.1	0	0	0.08	0.37	82.7	0.11	0.43	79.0
63	82	✓		✓		75	0.1	0	0	0.20	0.24	55.1	0.18	0.36	67.2
64	81			✓		75	0.1	0	0	0.11	0.33	74.5	0.16	0.38	69.7
65	80	✓		✓		100	0.1	0	0	0.20	0.24	54.1	0.17	0.37	68.9
66	79	✓		✓		125	0.1	0	0	0.23	0.22	49.0	0.20	0.34	63.9
67	60	✓		✓	✓	50	0.1	0	0	0.21	0.24	53.1	0.34	0.20	37.0
68	83	✓		✓	✓	75	0.1	0	0	0.25	0.19	42.9	0.29	0.25	47.1
69	68	✓		✓	✓	100	0.1	0	0	0.20	0.25	56.1	0.25	0.29	52.9
70	71	✓				50	0.08[e]	0	0	0.26	0.18	40.8			
71	71	✓				50	0.43[f]	0	0				1.85	(1.31)	(243)

[a] Based on results of tests 50 and 62 for Degreaser A; tests 50, 62, and 76 for Degreaser B.

[b] Based on results of tests 58 and 63.

[c] Crosscurrent test at 0.26 m/s.

[d] Average of tests 52 and 59.

[e] Lip exhaust rate in units of m^3/s per m^2 of open top area.

[f] Crosscurrent test at 0.43 m/s.

TABLE 25. SUMMARY OF SOLVENT LOSS DATA FOR IDLE DEGREASERS USING METHYLENE CHLORIDE
(English units)

Test conditions										Solvent loss data					
										Degreaser A			Degreaser B		
											Decrease (Increase) from base case			Decrease (Increase) from base case	
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, ft/min	Hoist speed, ft/min	Load area, %	lb/h	lb/h	%	lb/h	lb/h	%
48	a	✓	✓	✓		50	20	0	0	0.98	0	0	1.19	0	0
49	51		✓	✓		50	20	0	0	0.64	0.34	35.0	0.79	0.40	33.6
50	64	✓	✓	✓		75	20	0	0	0.73	0.23	25.5	1.05	0.14	11.7
51	65	✓	✓	✓		100	20	0	0	0.84	0.14	14.3	0.95	0.24	20.2
52	69	✓	✓	✓		125	20	0	0	0.80	0.18	18.4	1.22	(0.03)	(2.52)
53	b	✓	✓	✓	✓	50	20	0	0	1.40	(0.42)	(42.9)	0.70	0.44	37.0
54	67	✓	✓	✓	✓	100	20	0	0	0.71	0.27	27.6	0.50	0.64	53.8
55	72	✓	✓	✓		50	52^c	0	0				8.3	(7.11)	(597)
56	72	✓	✓	✓		50	100^d	0	0	5.09	(4.11)	419			
57	76	✓	✓	✓		75	50^d	0	0	1.66	(0.68)	(69.3)			
58	77	✓	✓	✓		75	100^d	0	0	2.15	(1.17)	(119)			
59	77	✓	✓	✓		75	52^c	0	0				4.92	(3.73)	(313)
60	61	✓				50	20	0	0	0.51	0.47	48	0.48	0.71	59.7
61	d	✓		✓		50	20	0	0	0.44	0.54	55.1	0.32	0.87	73.1

(continued)

TABLE 25 (continued)

Test conditions										Solvent loss data					
										Degreaser A			Degreaser B		
											Decrease (Increase) from base case			Decrease (Increase) from base case	
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, ft/min	Hoist speed, ft/min	Load area, %	lb/h	lb/h	%	lb/h	lb/h	%
62	78			✓		50	20	0	0	0.17	0.81	82.7	0.25	0.94	79.0
63	82	✓		✓		75	20	0	0	0.44	0.54	55.1	0.39	0.80	67.2
64	81			✓		75	20	0	0	0.25	0.73	74.5	0.36	0.83	69.7
65	80	✓		✓		100	20	0	0	0.45	0.53	54.1	0.37	0.82	68.9
66	79	✓		✓		125	20	0	0	0.50	0.48	49.0	0.43	0.76	63.9
67	60	✓		✓	✓	50	20	0	0	0.46	0.52	53.1	0.75	0.44	37.0
68	83	✓		✓	✓	75	20	0	0	0.56	0.42	42.9	0.63	0.56	47.1
69	68	✓		✓	✓	100	20	0	0	0.43	0.55	56.1	0.56	0.63	52.9
70	71	✓				50	16[e]	0	0	0.58	0.40	40.8			
71	71	✓				50	84[f]						4.08	(2.89)	(243)

[a] Based on results of tests 50 and 62 for Degreaser A; tests 50, 62, and 76 for Degreaser B.

[b] Based on results of tests 58 and 63.

[c] Crosscurrent test at 52 ft/min.

[d] Average of tests 52 and 59.

[e] Lip exhaust rate in units of ft^3/min per ft^2 of open top area.

[f] Crosscurrent test at 84 ft/min.

TABLE 26. SUMMARY OF SOLVENT LOSS DATA FOR IDLE DEGREASERS USING NONBOILING METHYLENE CHLORIDE

Test conditions										Solvent loss data					
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, m/s	Hoist speed, m/s	Load area, %	Degreaser A			Degreaser B		
										kg/h	Decrease (Increase) from base case		kg/h	Decrease (Increase) from base case	
											kg/h	%		kg/h	%
61	a	✓		✓		50	0.1	0	0	0.20	0	0	0.15	0	0
60	61	✓				50	0.1	0	0	0.23	(0.03)	(15.9)	0.22	(0.07)	(50)
62	78			✓		50	0.1	0	0	0.08	0.12	61.4	0.11	0.03	22
63	82	✓		✓		75	0.1	0	0	0.20	0	0	0.18	(0.03)	(22)
64	81			✓		75	0.1	0	0	0.11	0.09	43.2	0.16	(0.02)	(13)
65	80	✓		✓		100	0.1	0	0	0.20	(0.009)	(2.3)	0.15	(0.02)	(16)
66	79	✓		✓		125	0.1	0	0	0.23	(0.03)	(14)	0.20	(0.05)	(34)
67	60	✓		✓	✓	50	0.1	0	0	0.21	(0.01)	(4.5)	0.34	(0.20)	(134)
68	83	✓		✓	✓	75	0.1	0	0	0.25	(0.05)	(27.3)	0.29	(0.14)	(96.9)
69	68	✓		✓	✓	100	0.1	0	0	0.20	0.009	2.3	0.25	(0.11)	(75.9)

[a] Average of tests 52 and 59.

TABLE 27. SUMMARY OF SOLVENT LOSS DATA FOR IDLE DEGREASERS USING NONBOILING METHYLENE CHLORIDE
(English units)

Test conditions										Solvent loss data					
Test group No.	Test No.	Lid open	Solvent boiling	Primary condenser	Refrig. free-board chiller	Freeboard ratio, %	Air velocity at lip, ft/min	Hoist speed, ft/min	Load area, %	Degreaser A			Degreaser B		
										lb/h	Decrease (Increase) from base case		lb/h	Decrease (Increase) from base case	
											lb/h	%		lb/h	%
61	a	✓		✓		50	20	0	0	0.44	0	0	0.32	0	0
60	61	✓				50	20	0	0	0.51	(0.07)	(15.9)	0.48	(0.16)	(50)
62	78			✓		50	20	0	0	0.17	0.27	61.4	0.25	0.07	22
63	82	✓		✓		75	20	0	0	0.44	0	0	0.39	(0.07)	(22)
64	81			✓		75	20	0	0	0.25	0.19	43.2	0.36	(0.04)	(13)
65	80	✓		✓		100	20	0	0	0.45	0.01	(2.3)	0.37	(0.05)	(16)
66	79	✓		✓		125	20	0	0	0.50	(0.06)	(14)	0.43	(0.11)	(34)
67	60	✓		✓	✓	50	20	0	0	0.46	(0.02)	(4.5)	0.75	(0.43)	(134)
68	83	✓		✓	✓	75	20	0	0	0.56	(0.12)	(27.3)	0.63	(0.31)	(96.9)
69	68	✓		✓	✓	100	20	0	0	0.43	0.01	2.3	0.56	(0.24)	(75.9)

[a] Average of tests 52 and 59.

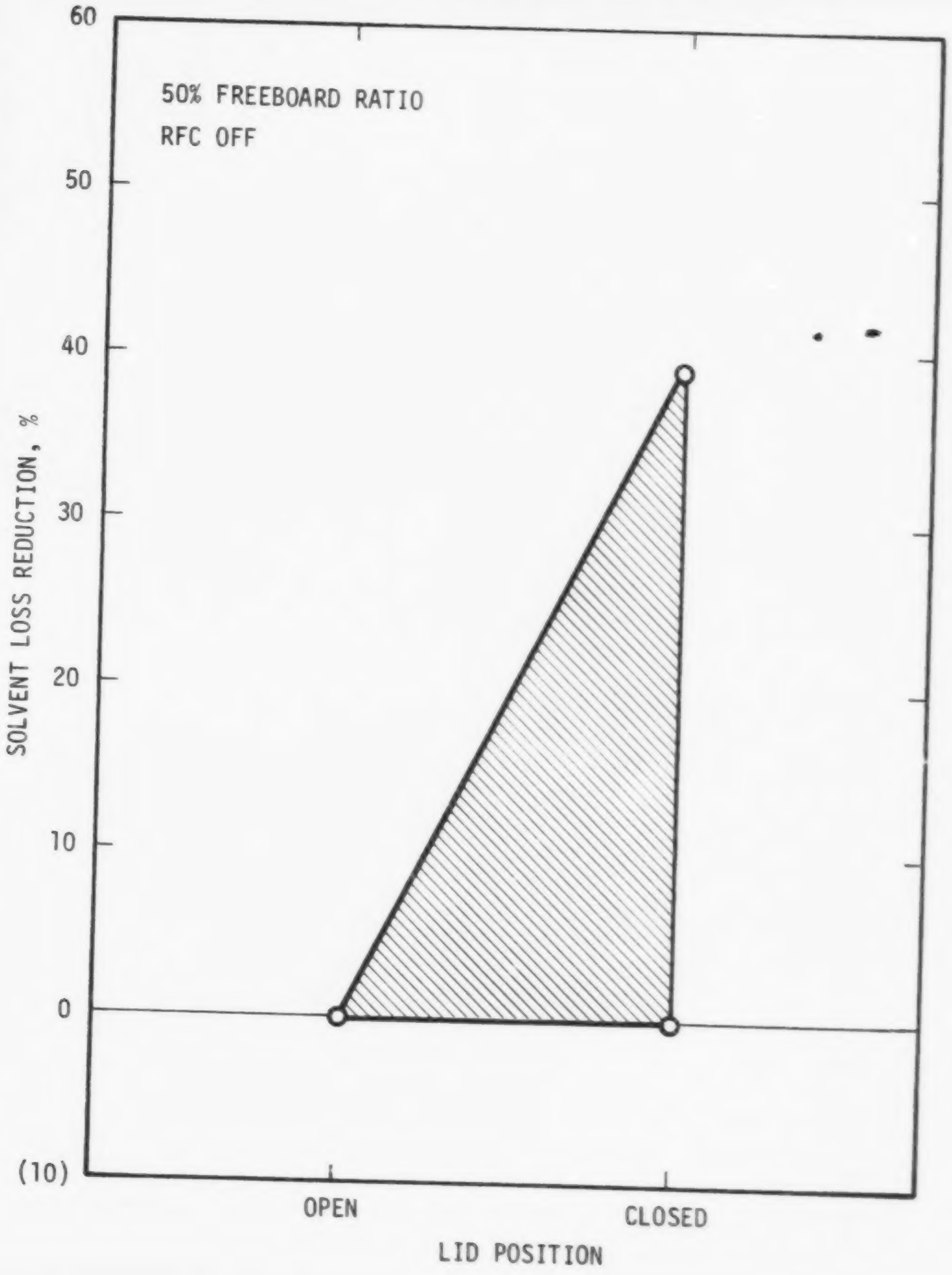


Figure 10. Effect of lid in reducing solvent loss from idle degreaser holding nonboiling 1,1,1-trichloroethane.

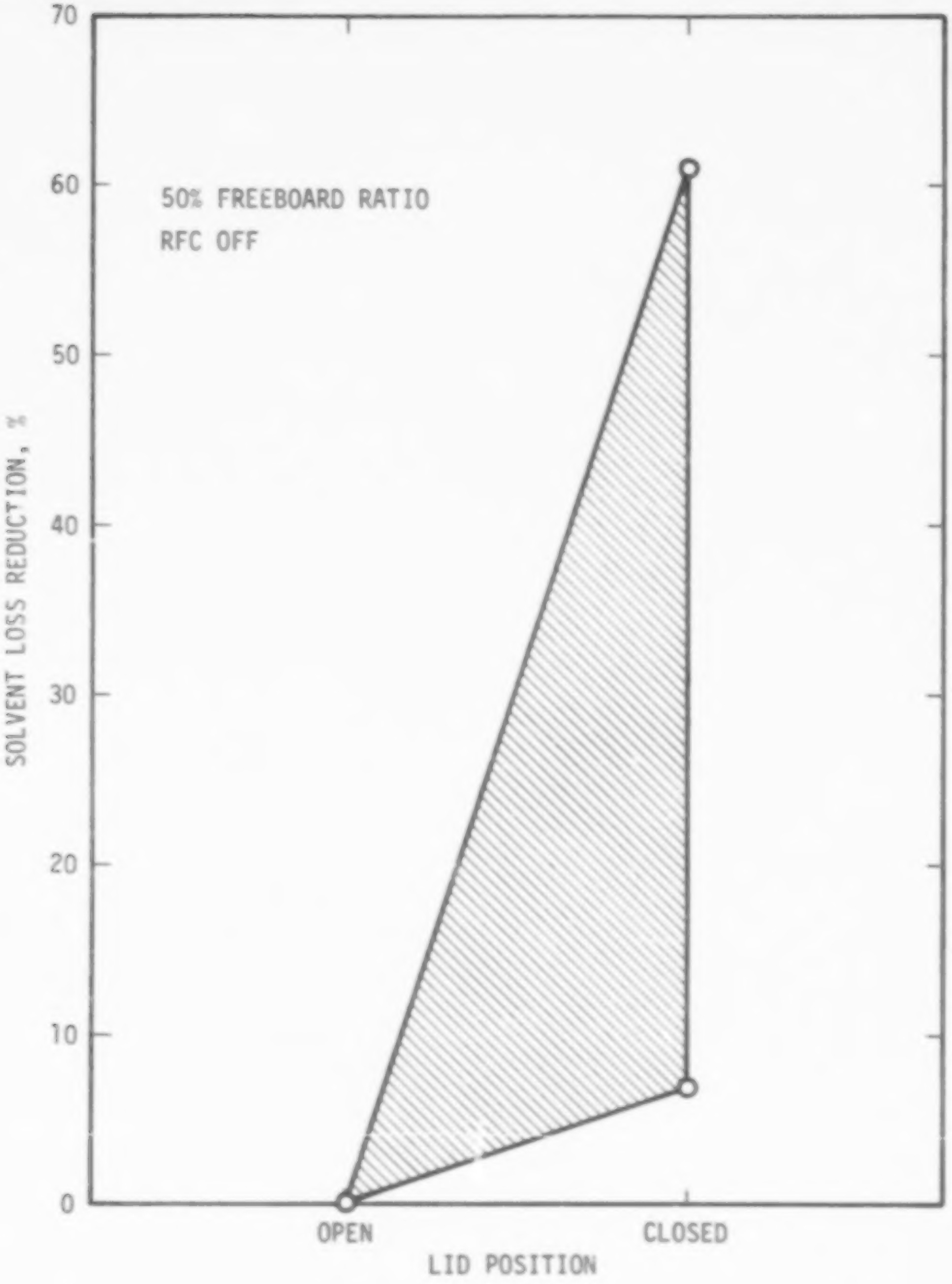


Figure 11. Effect of lid in reducing solvent loss from idle degreaser holding boiling 1,1,1-trichloroethane.

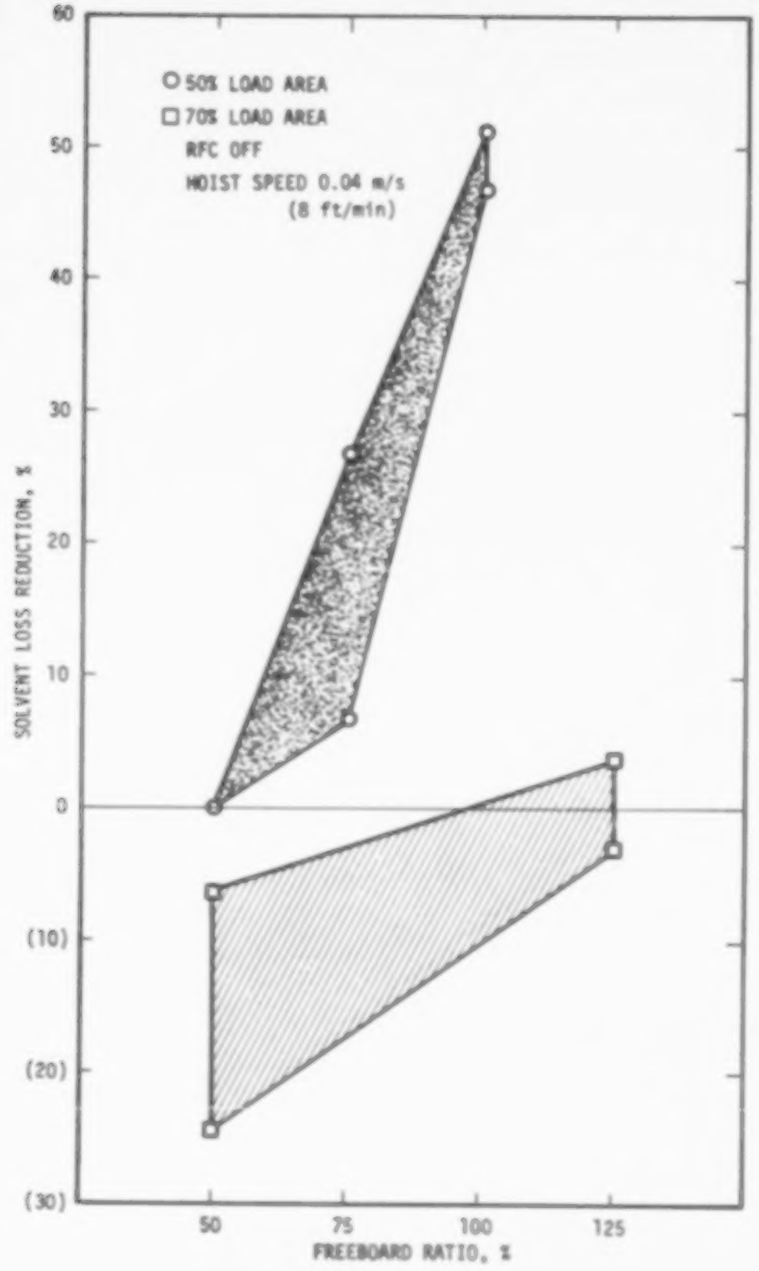


Figure 12. Effect of freeboard ratio in reducing solvent loss from operating degreaser using 1,1,1-trichloroethane at hoist speed of 0.04 m/s (8 ft/min).

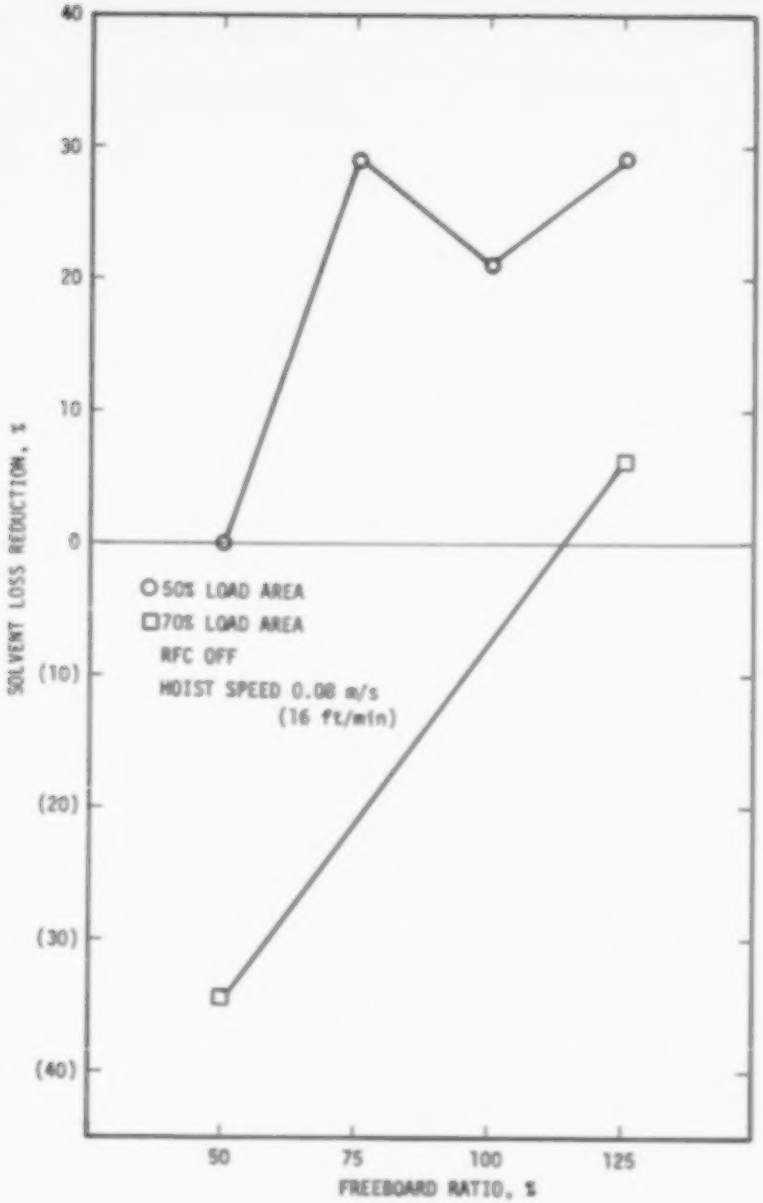


Figure 13. Effect of freeboard ratio in reducing solvent loss from operating degreaser using 1,1,1-trichloroethane at hoist speed of 0.08 m/s (16 ft/min).

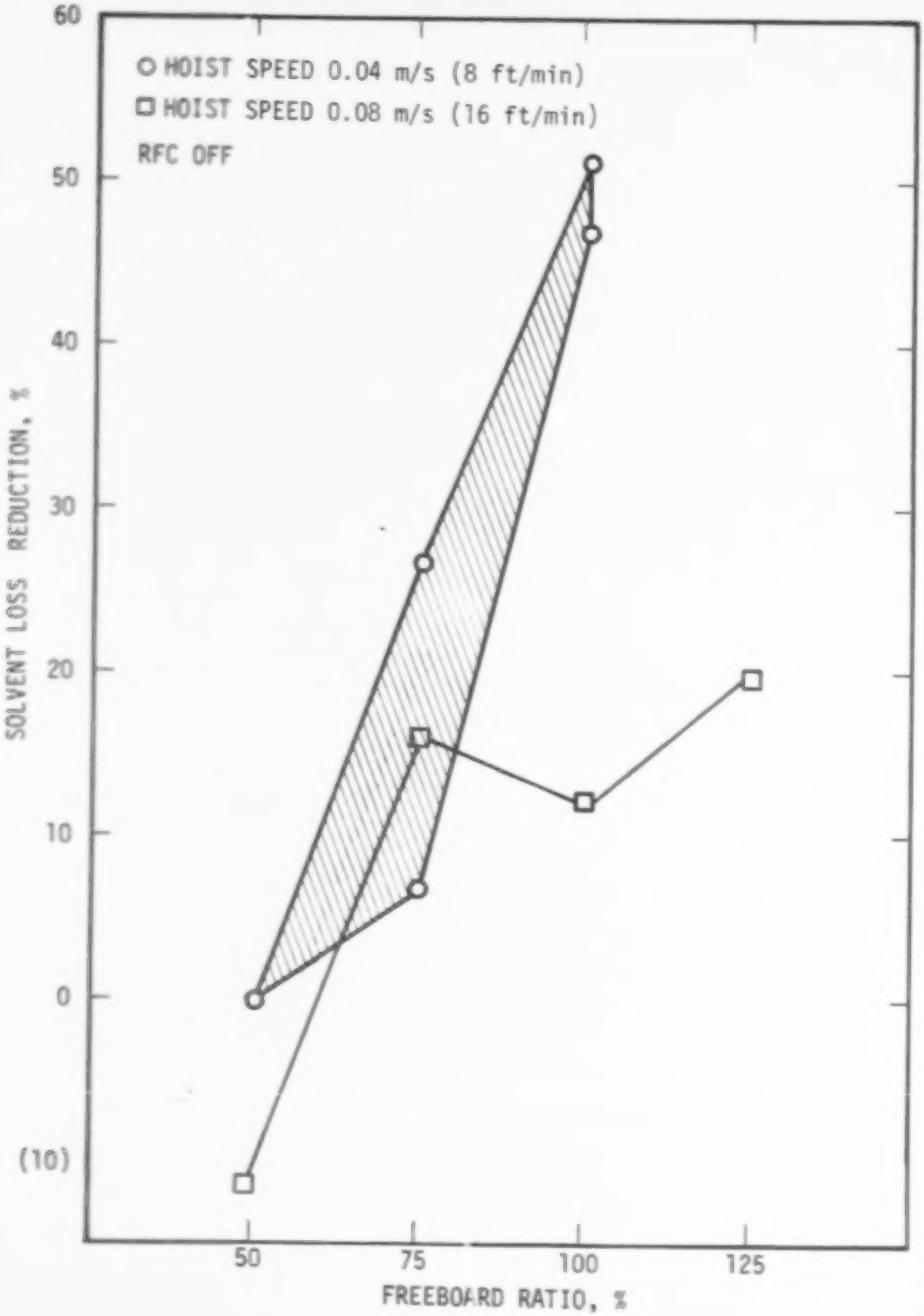


Figure 14. Effect of hoist speed in reducing solvent loss from operating degreaser using 1,1,1-trichloroethane and 50 percent load area.

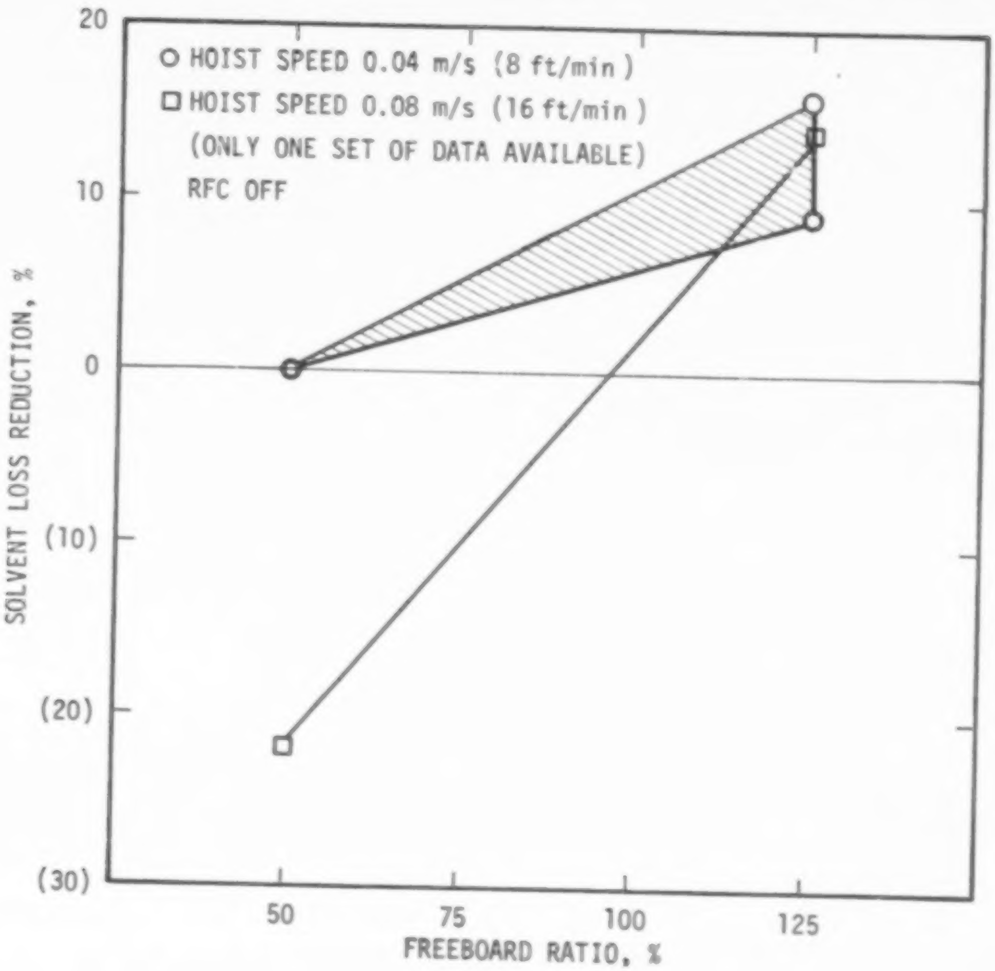


Figure 15. Effect of hoist speed in reducing solvent loss from operating degreaser using 1,1,1-trichloroethane and 70 percent load area.

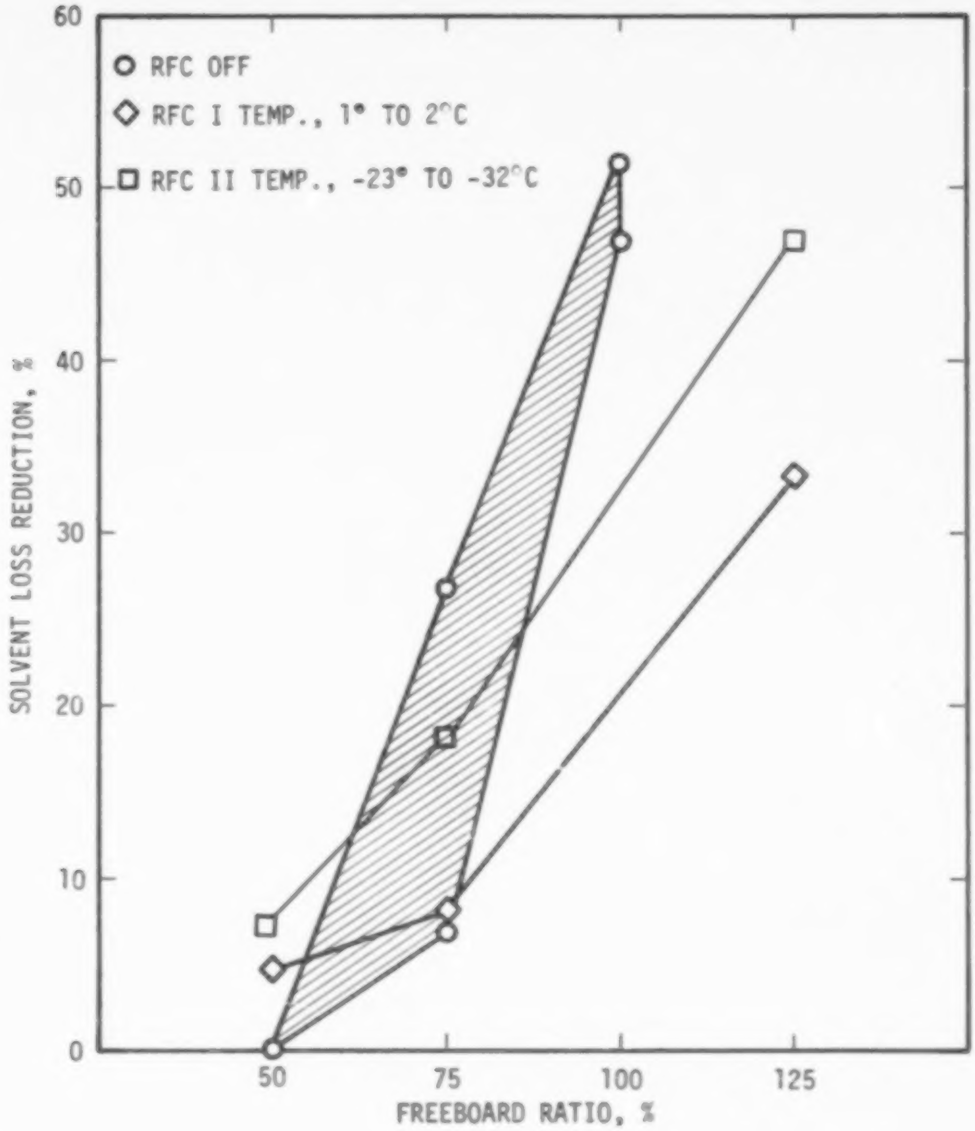


Figure 16. Effect of refrigerated freeboard chiller in reducing solvent loss from operating degreaser using 1,1,1-trichloroethane and 50 percent load area.

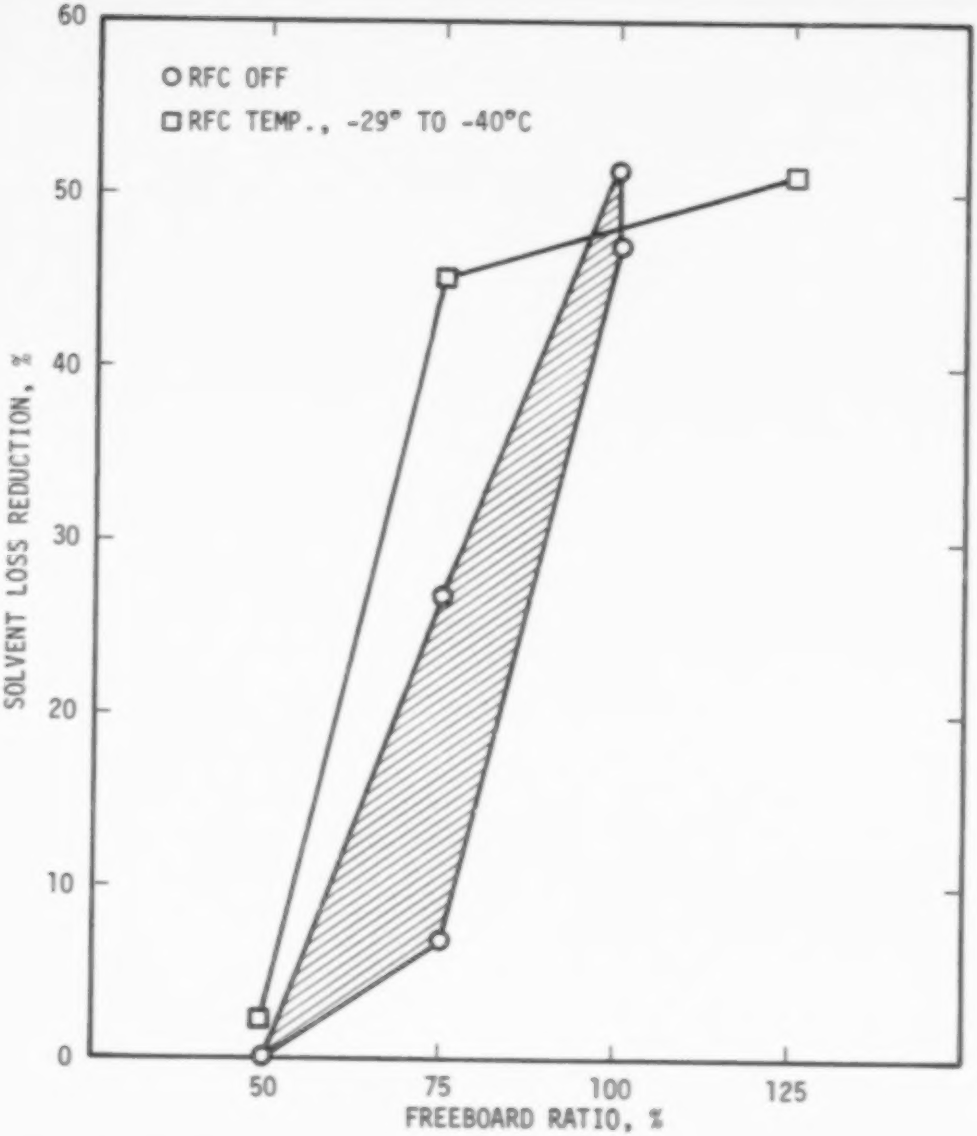


Figure 17. Effect of Refrigerated Freeboard Chiller II in reducing solvent loss from operating degreaser using 1,1,1-trichloroethane.

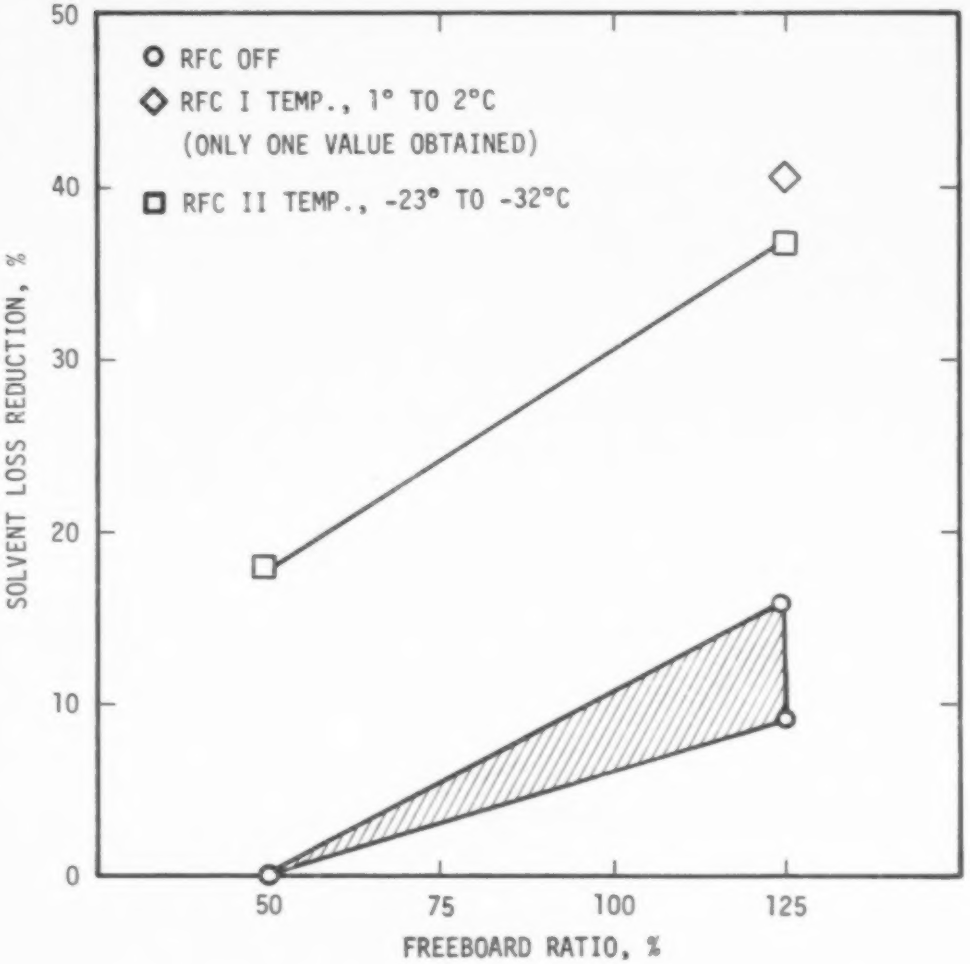


Figure 18. Effect of refrigerated freeboard chiller in reducing solvent loss from operating degreaser using 1,1,1-trichloroethane and 70 percent load area.

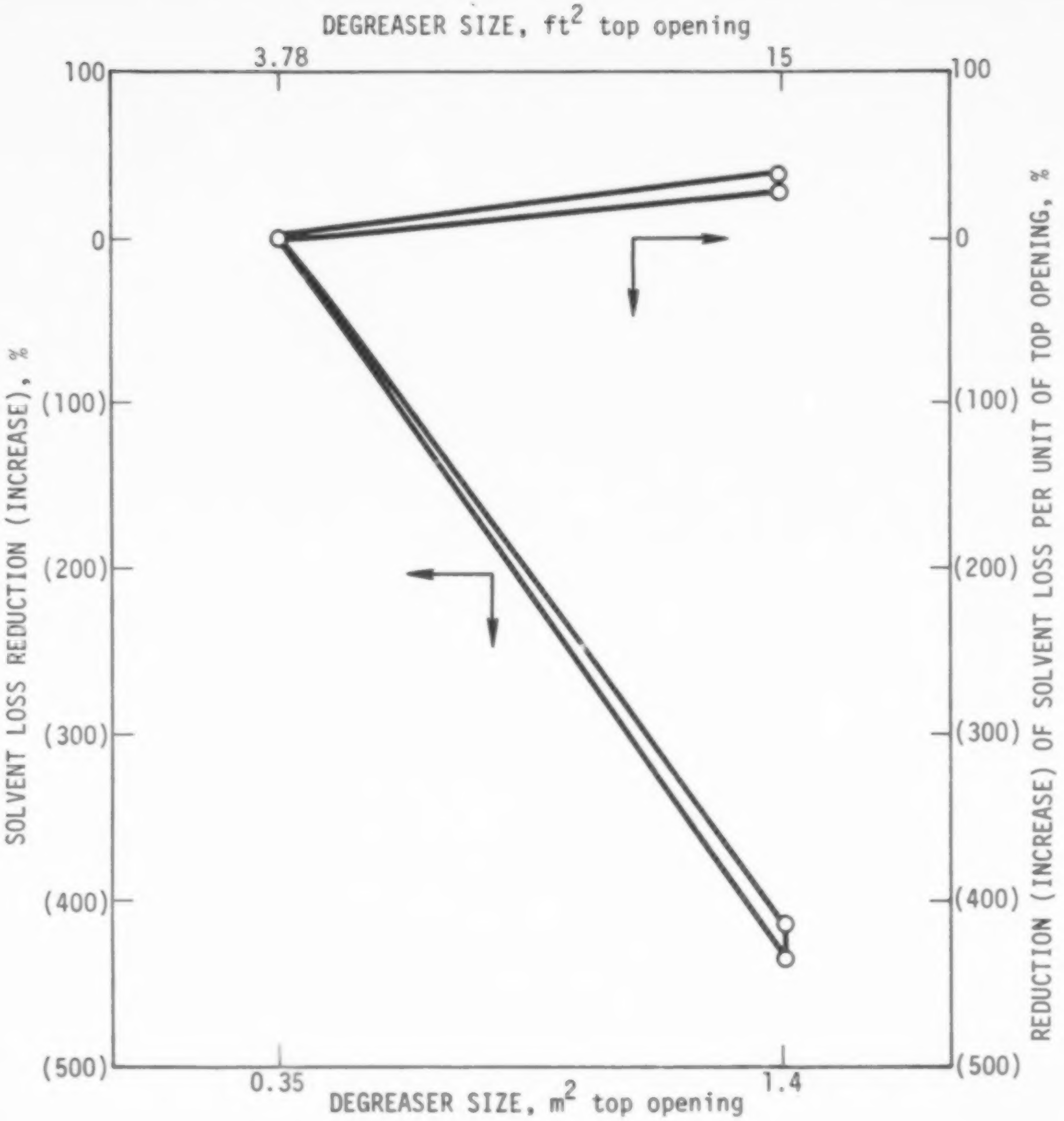


Figure 19. Effect of degreaser top open area on solvent loss rate from an operating degreaser using 1,1,1-trichloroethane.

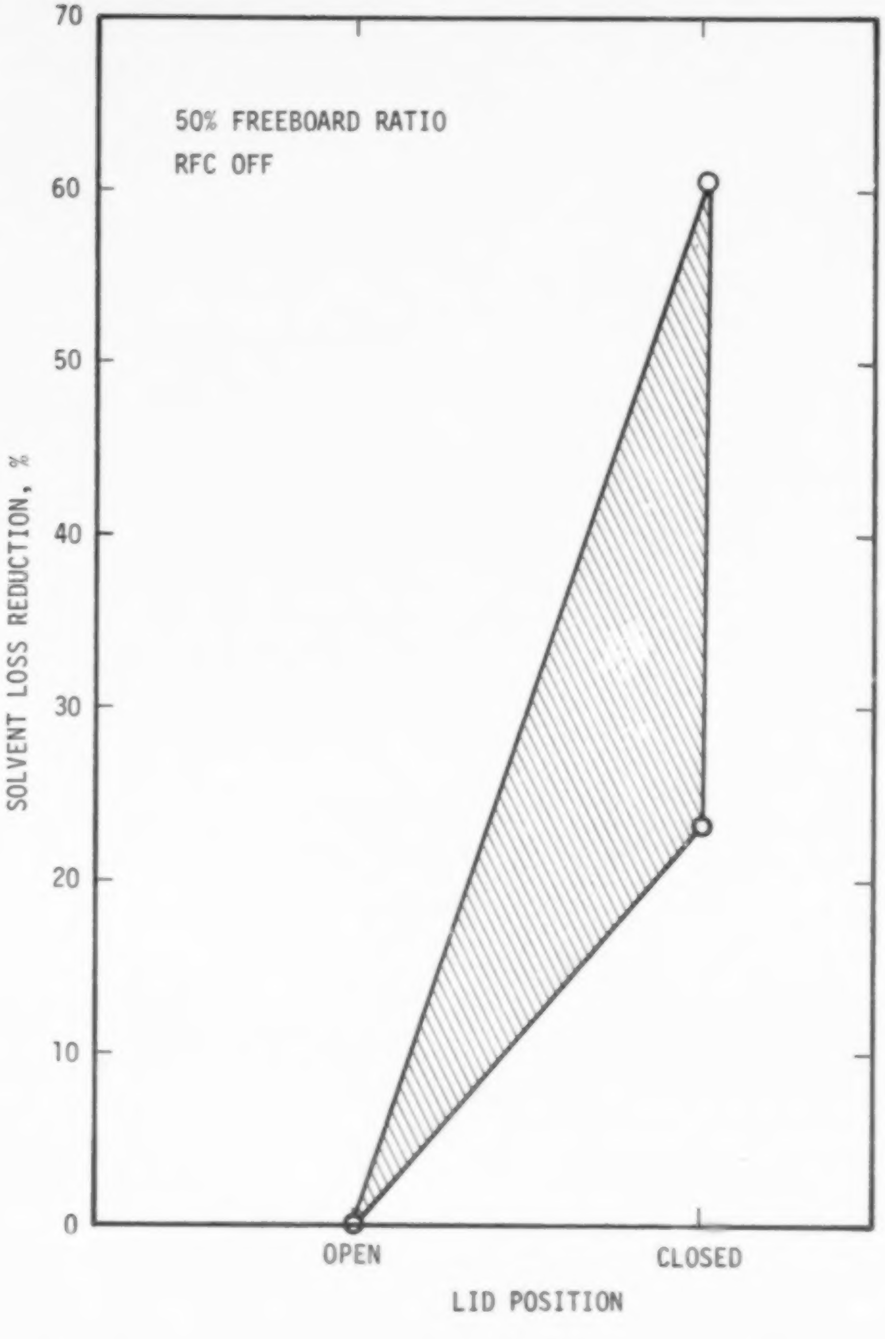


Figure 20. Effect of lid in reducing solvent loss from idle degreaser holding nonboiling methylene chloride.

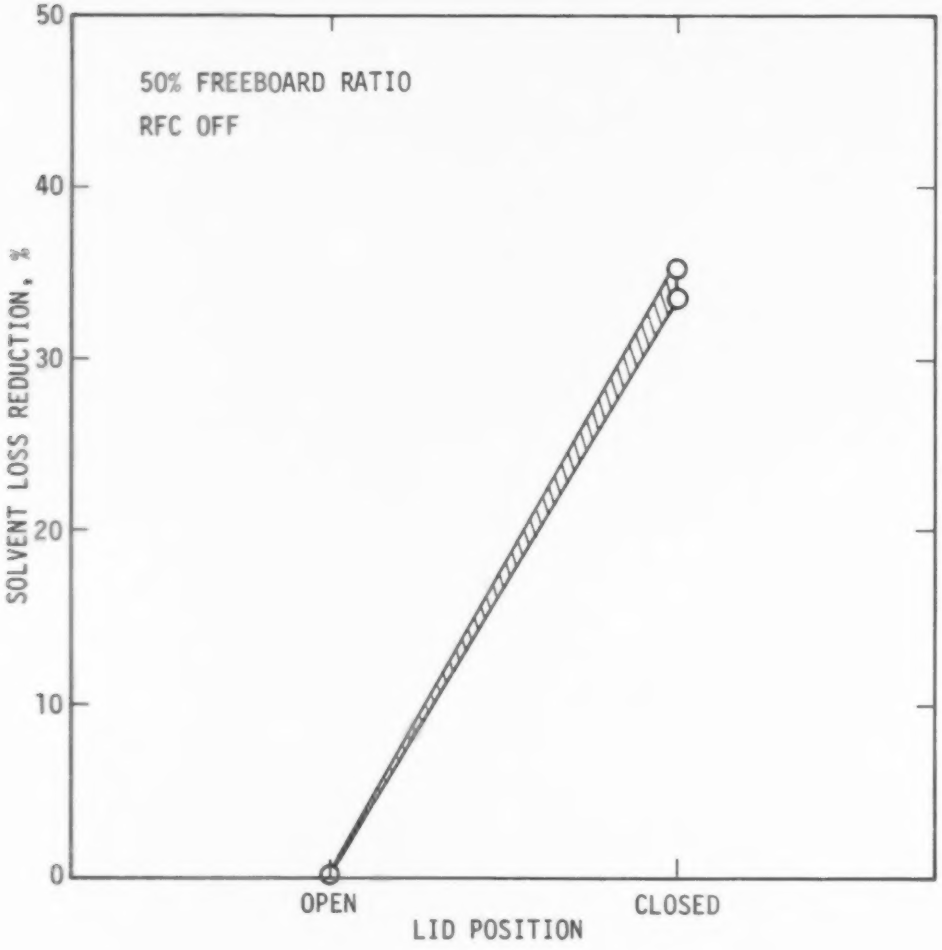


Figure 21. Effect of lid in reducing solvent loss from idle degreaser holding boiling methylene chloride.

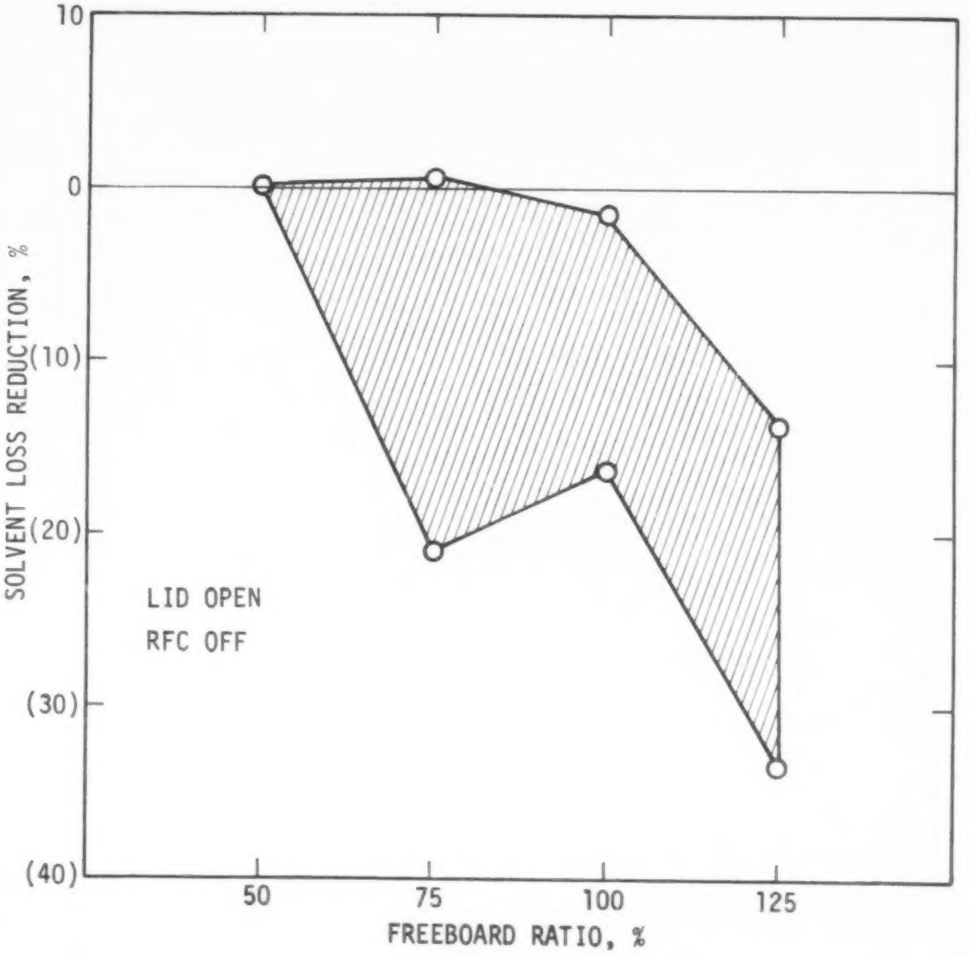


Figure 22. Effect of freeboard ratio in reducing solvent loss from idle degreaser holding nonboiling methylene chloride.

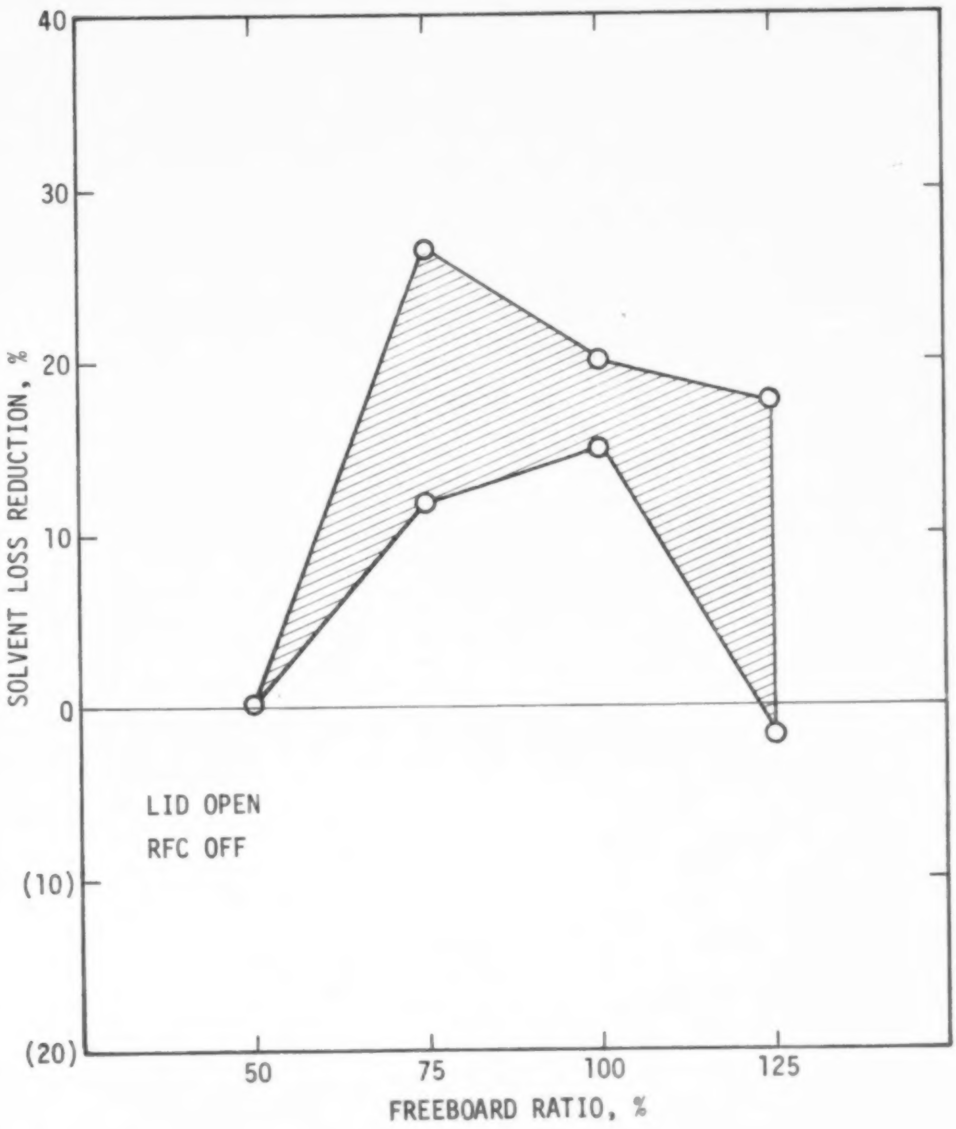


Figure 23. Effect of freeboard ratio in reducing solvent loss from idle degreaser holding boiling methylene chloride.

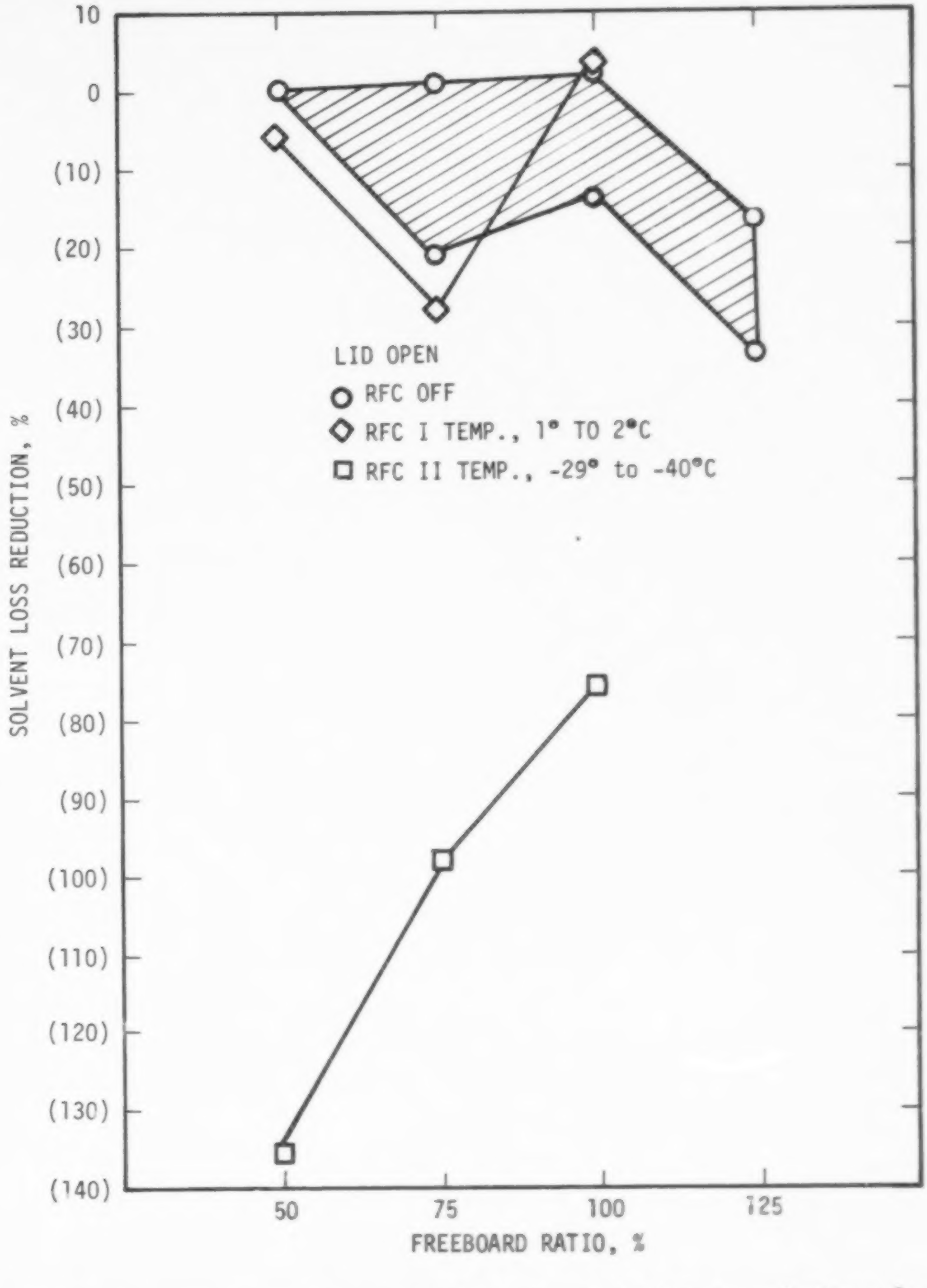


Figure 24. Effect of refrigerated freeboard chiller in reducing solvent loss from idle degreaser holding nonboiling methylene chloride.

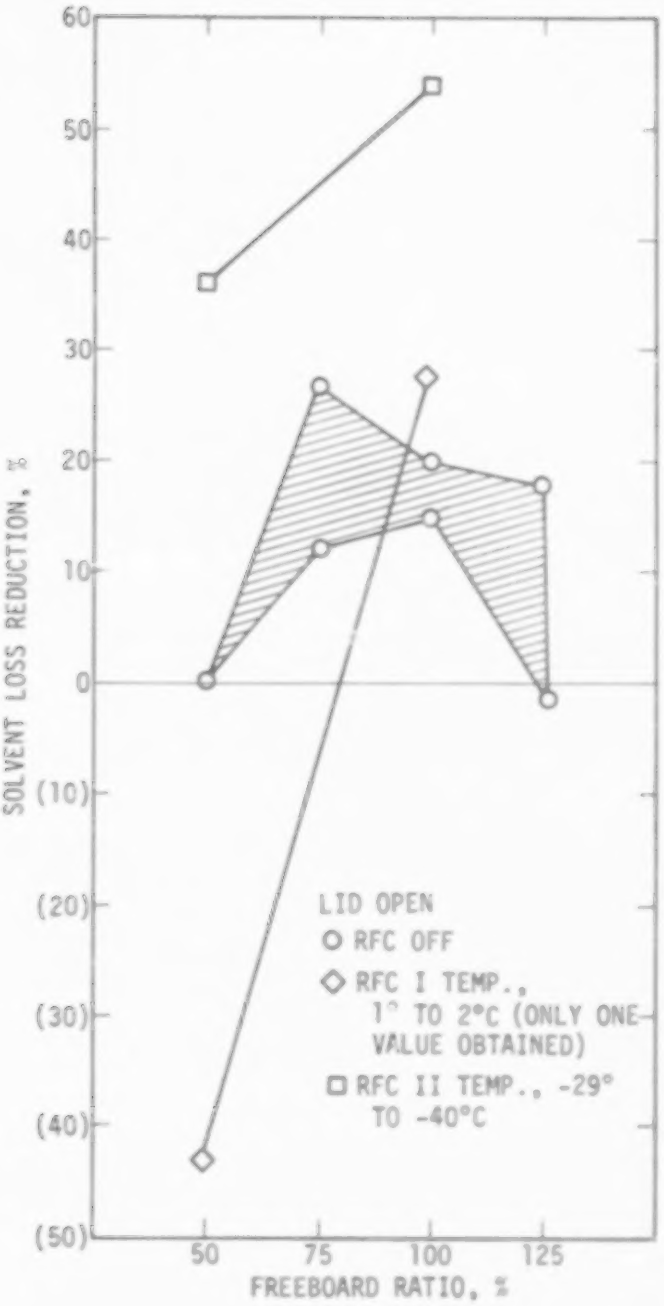


Figure 25. Effect of refrigerated freeboard chiller in reducing solvent loss from idle degreaser holding boiling methylene chloride.

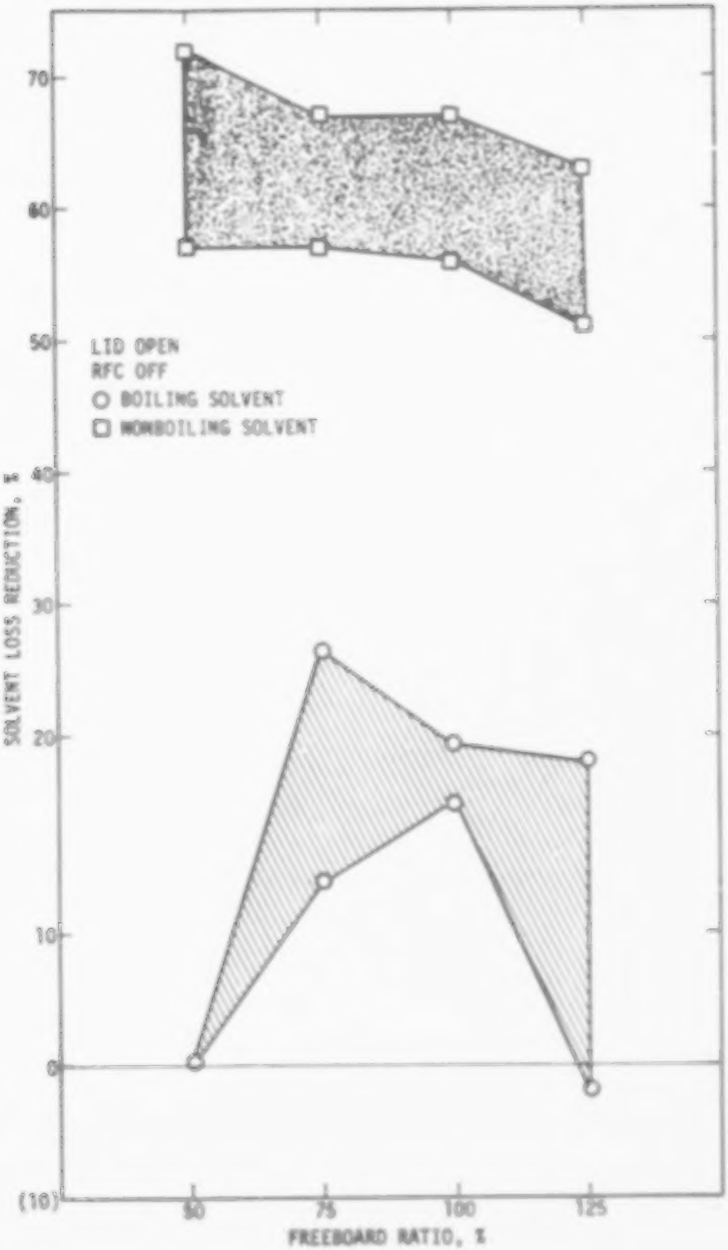


Figure 26. Effect of freeboard ratio in reducing solvent loss from idle degreaser holding methylene chloride.

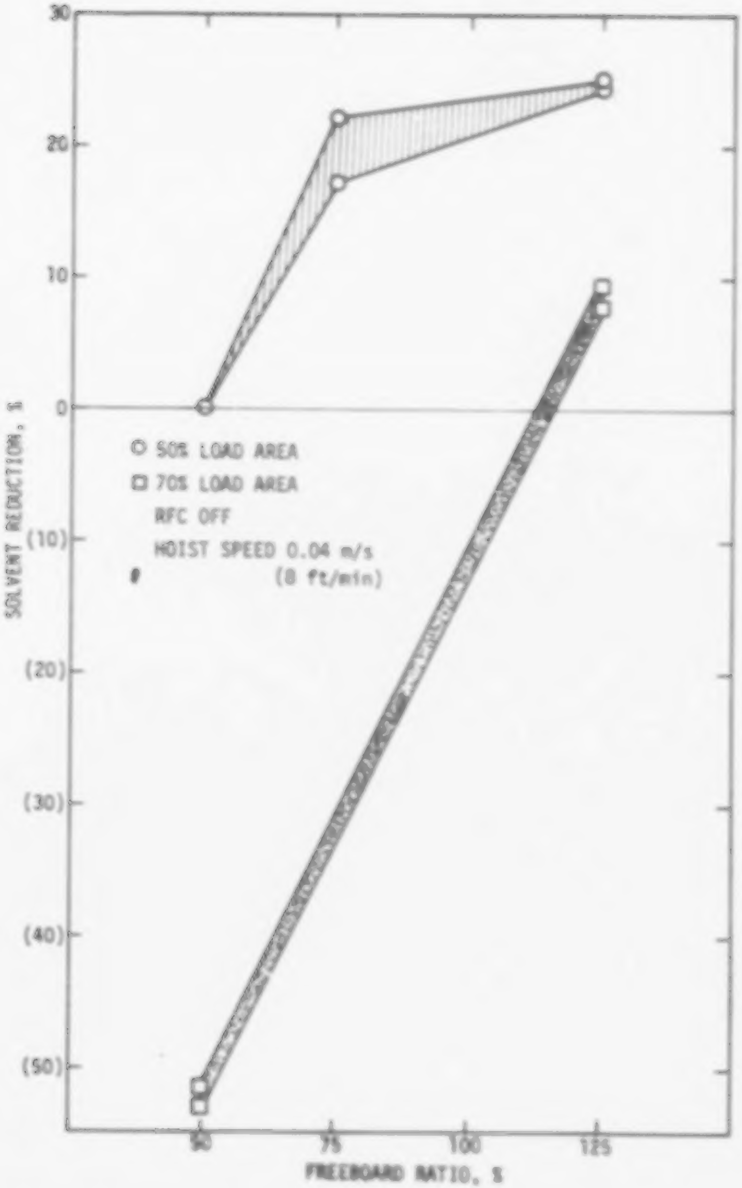


Figure 27. Effect of freeboard ratio in reducing solvent loss from operating degreaser using methylene chloride.

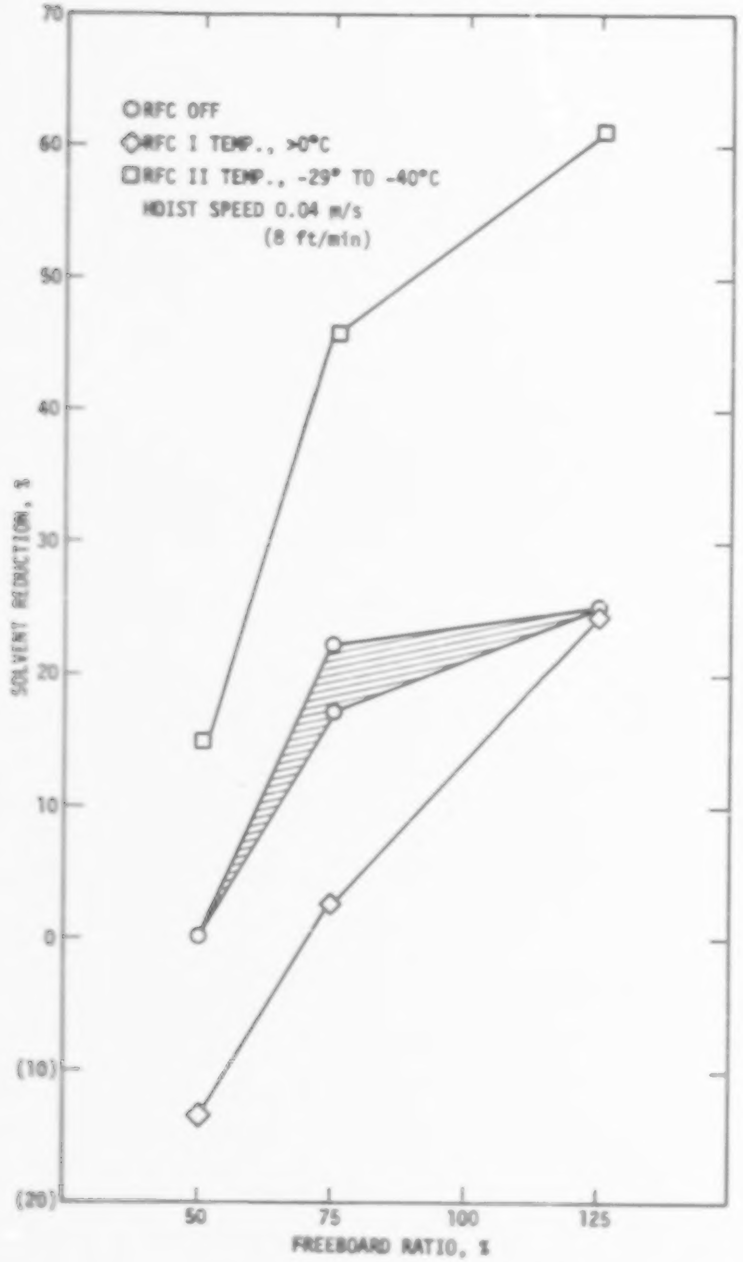


Figure 28. Effect of refrigerated freeboard chiller in reducing solvent loss from operating degreaser using methylene chloride and 50 percent load area.

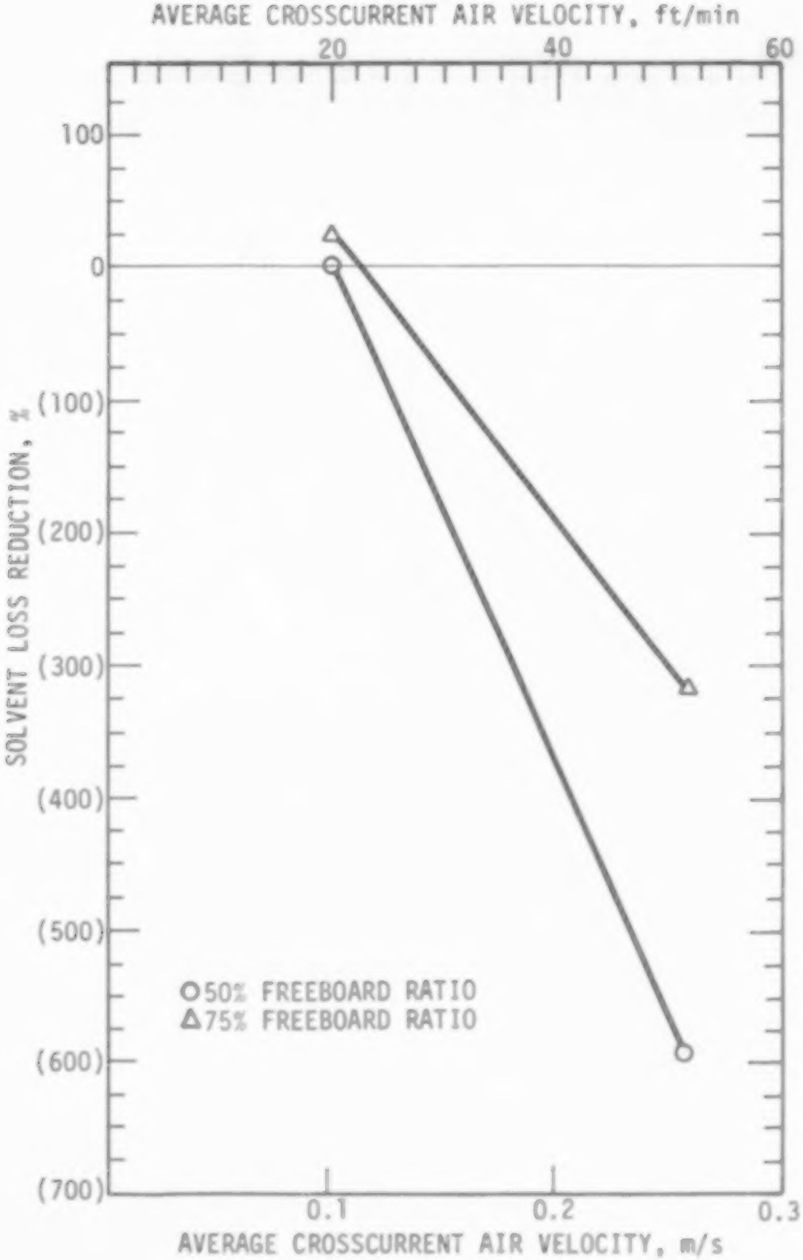


Figure 29. Effect of crosscurrent air velocity on solvent loss from idle degreaser holding boiling methylene chloride.

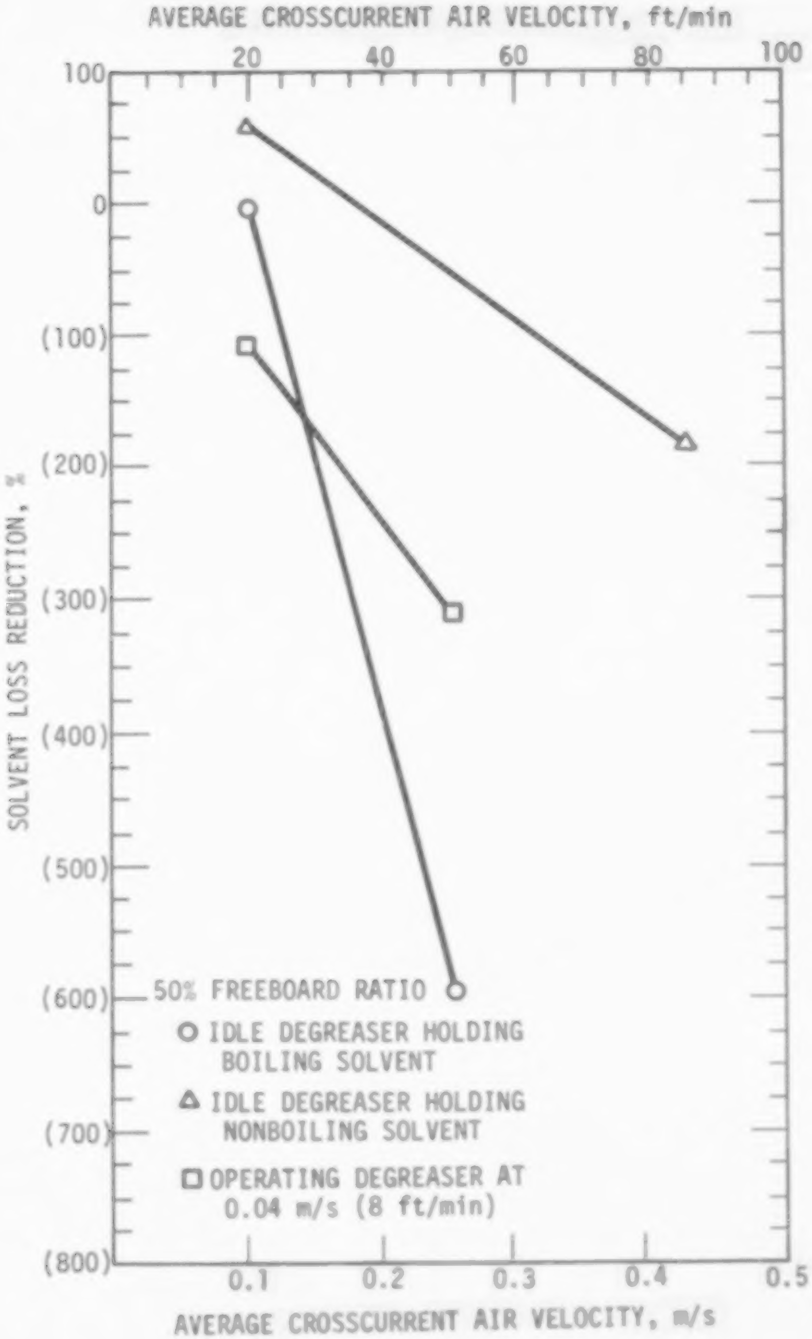


Figure 30. Effect of crosscurrent air velocity on solvent loss from degreaser using methylene chloride.

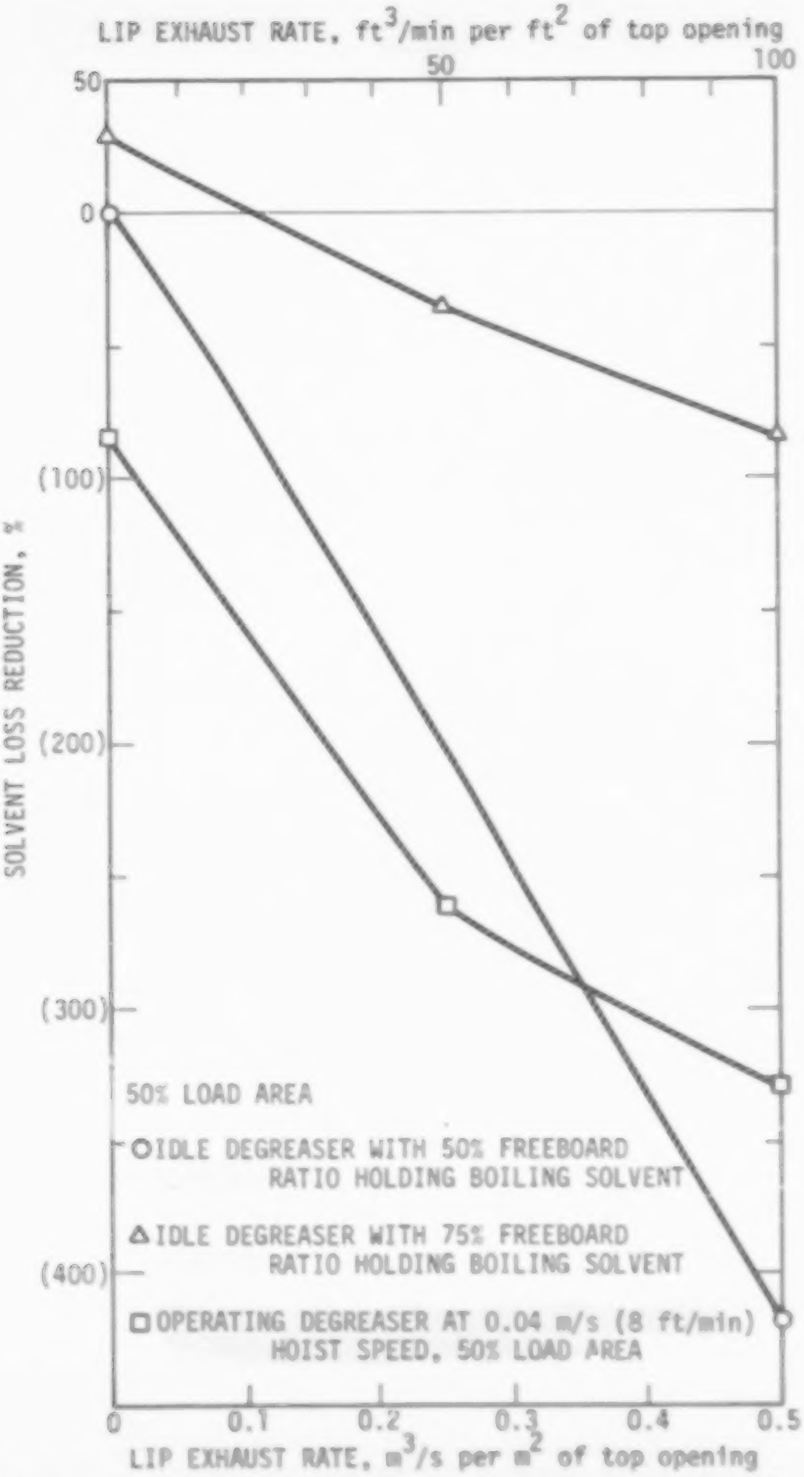


Figure 31. Effect of lip exhaust rate in reducing solvent loss from degreaser using methylene chloride.

degreasers holding nonboiling MC, from 22 to 61 percent. For idle degreasers holding boiling TE and MC, the corresponding ranges of solvent loss reduction are 7 to 61 percent and 34 to 35 percent.

Freeboard Ratio--

The results of tests on operating degreasers using both TE and MC show a clear trend toward a decrease in solvent loss as the freeboard ratio is increased. With degreasers using TE and a normal load area of 50 percent, solvent loss was reduced by a range of 7 to 25 percent as FR increased from 50 to 75 percent; and was reduced by a range of 47 to 53 percent as FR increased from 50 to 100 percent (Figure 12). With degreasers using MC and a load area of 50 percent, solvent loss was reduced by a range of 17 to 22 percent as FR was increased to 75 percent; solvent loss was reduced 25 percent as FR was increased to 125 percent (Figure 27). When the load area was increased to 70 percent, similar results were obtained. Using TE, solvent loss was reduced by a range of 8 to 16 percent when FR was increased to 125 percent; using MC, solvent loss was reduced about 40 percent under the same conditions.

Similar tests were run with a change of hoist speed from 0.04 to 0.08 m/s (8 to 16 ft/min). In these tests (Figure 13), solvent loss was reduced by 28 percent as FR was increased from 50 to 75 percent (using TE and a normal load of 50 percent). When FR was increased beyond 75 percent, however, no further significant reduction in solvent loss was obtained. Solvent loss was also reduced 30 percent as FR was increased from 50 to 125 percent using TE and a load area of 70 percent.

The test results indicated that increased freeboard ratio has a negligible effect on solvent loss from idle degreasers (Figures 22 and 23). Figure 22 shows that solvent loss increases with increasing freeboard height. When FR was increased to 75, 100, and 125 percent on degreasers holding nonboiling MC, the minimum increases in solvent loss were 0, 2, and 14 percent, respectively. The maximum increases in solvent loss were about 22, 16, and 34 percent. Although these values seem to show a significant increase in solvent loss, they are derived from the absolute solvent loss rates for degreasers holding nonboiling MC. These rates are magnified when translated into percentages of solvent loss. The increase in solvent loss that accompanies the increase in freeboard ratio can be presumed to be caused by experimental error.

When FR was increased to 75 percent on degreasers holding boiling MC, solvent loss was reduced by a range of 12 to 26 percent. When FR was increased to 100 percent, solvent loss was reduced by a range of 15 to 20 percent. When FR was increased to 125 percent, solvent loss was reduced by as much as 18 percent (see Figure 23).

Refrigerated Freeboard Chiller--

Data on refrigerated freeboard chillers were gathered simultaneously from Degreaser A, which was equipped with RFC I, and Degreaser B, equipped with RFC II. Figures 16, 17, 18, 24, 25, and 28 show the capability of the chillers to reduce solvent loss.

RFC I operated at refrigeration temperatures of 1° to 2°C (34° to 36°F). RFC II operated at two temperatures (before and after the corrections noted in Section 2): -23° to -32°C (-10° to -25°F), and -29° to -40°C (-20° to -40°F). Test data are available on RFC I and on RFC II (at both temperatures) for degreasers using TE and cleaning a load of 50 percent of the top opening area; on RFC I and RFC II (at -23° to -32°C) degreasers using TE and cleaning a load of 70 percent; and on RFC I and RFC II (at -29° to -40°C) for degreasers using MC.

On degreasers using TE, both chillers [with RFC II at -23° to -32°C (-10° to -25°F)] to -32°C (-10° to -25°F)] were somewhat effective in reducing solvent loss at 50 percent FR; they had no effect at 75 percent FR, and they increased solvent loss at 100 percent FR and above, when compared with corresponding degreasers without RFC (Figure 16).

RFC II at -29° to -40°C (-20° to -40°F) was effective up to 75 percent FR and ineffective at 100 percent FR when compared with the corresponding system without RFC. (See Figure 17.)

On degreasers using MC, RFC I increased solvent loss and RFC II at -29° to -40°C (-20° to -40°F) decreased solvent loss to levels lower than those with no RFC (Figure 28). RFC I increased solvent loss by 15 percent at 50 percent FR, by 15 to 23 percent at 75 percent FR, and by zero percent at 125 percent FR; RFC II at -29° to -40°C (-20° to -40°F) decreased solvent loss by 16 percent at 50 percent FR, by 30 to 35 percent at 75 percent FR, and by 50 percent at 125 percent FR.

On degreasers using TE and a load area of 70 percent, both chillers [with RFC II at -23° to -32°C (-10° to -25°F)] proved effective (Figure 18). The RFC I reduced solvent loss by 34 to 37 percent at 125 percent FR; RFC II reduced solvent loss by 18 percent at 50 percent FR and by 30 to 33 percent at 125 percent FR.

On idle degreasers holding nonboiling MC, both chillers proved ineffective. RFC I increased solvent loss by 5 percent at 50 percent FR and by 4 to 27 percent at 75 percent FR; it decreased solvent loss by negligible amounts to 15 percent at 100 percent FR. RFC II [at -29° to -40°C (-20° to -40°F)] increased solvent loss by 135 percent at 50 percent FR, 60 to 100 percent at 75 percent FR, and 50 to 70 percent at 100 percent FR (Figure 24).

On an idle degreaser holding boiling MC, RFC I was ineffective and RFC II was effective. RFC I increased solvent loss by 43 percent at 50 percent FR and decreased solvent loss by 28 percent at 100 FR when compared with an idle degreaser at 50 percent FR and no chiller. RFC II decreased solvent loss by 37 percent at 50 percent FR and by 54 percent at 100 percent FR when compared with an idle degreaser at 50 percent FR and no chiller (Figure 25).

Load Cross-Sectional Area--

Results of tests varying the load cross-sectional area are displayed in Figures 12, 13, and 27. When the load area was increased from 50 to 70 percent ratio in degreasers using TE and operating at a hoist speed of 0.04 m/s (8 ft/min), solvent loss increased by 6 to 25 percent at 50 percent FR, by 10 to 70 percent at 75 percent FR, and by 80 to 100 percent at 100 percent FR (Figure 12). The latter two results were obtained by interpolation.

When the load area was increased from 50 to 70 percent in degreasers using TE and operating at 0.08 m/s (16 ft/min), solvent loss increased by 35 percent at 50 percent FR, 81 percent at 75 percent FR (by interpolation), 46 percent at 100 percent FR (by interpolation), and 33 percent at 125 percent FR (Figure 13). The corresponding increases in solvent loss when MC was used in an operating degreaser at 0.04 m/s (8 ft/min) were 55 percent at 50 FR, 54 to 75 percent (by interpolation) at 75 percent FR, 39 to 47 percent (by interpolation) at 100 FR, and 21 to 25 percent at 125 FR (Figure 27).

Hoist Speed--

Tests were run at hoist speeds of both 0.04 and 0.08 m/s (8 and 16 ft/min) on degreasers using TE (Figures 14 and 15). The higher hoist speed increased solvent loss at all freeboard ratios except 75 percent FR, where no difference was observed. The overall test data, however, indicated that increased freeboard ratio reduced solvent loss under all conditions. The data point at 75 FR may thus have been influenced by some unknown error. The increase in hoist speed increased solvent loss by 11 percent when the degreaser had 50 percent FR and by 64 to 94 percent when the degreaser had 100 percent FR (Figure 14).

The results were different when the degreasers tested had a load area of 70 percent. The increase in hoist speed increased solvent loss by 22 percent when the degreaser had 50 percent FR; however, no difference could be observed between the rates of solvent loss at the two speeds when the degreaser had 125 percent FR (Figure 15).

Crosscurrent Air Velocity--

Figures 29 and 30 present the data on the effects of increased crosscurrent air velocities on idle and operating degreasers. The data were collected from tests on Degreaser B using MC. The air velocity across the degreaser width was increased by a fan suspended from the ceiling that blew air across the top of the degreaser.

Although the operating degreaser had more solvent loss in calm air than the idle degreaser holding boiling MC, it had less than the corresponding idle degreaser at increased air velocities. At velocities of calm air (0.1 m/s or 20 ft/min) and of 0.26 m/s (52 ft/min), the operating degreaser had about 100 percent more and 50 percent less emissions, respectively, than the corresponding idle degreaser holding boiling MC (Figure 30).

At an air velocity of 0.26 m/s (52 ft/min), the idle degreaser holding boiling MC at 75 percent FR had a solvent loss reduction of about 45 percent compared to the loss at 50 percent FR all other conditions being the same. Comparisons were also made between calm air of 0.1 m/s (20 ft/min) and air moving at 0.26 m/s (52 ft/min). When the velocity was increased, the idle degreaser had an increase in solvent loss of about 600 percent at 50 percent FR and of more than 300 percent at 75 percent FR (Figure 29).

When the air velocity was increased from calm air to 0.43 m/s (84 ft/min), solvent loss from the idle degreaser holding nonboiling MC increased more than ten times (Figure 30).

Lip Exhaust--

The lip exhaust modification was tested by installing a system on Degreaser A. Because the data on solvent loss represent the total that is lost through the exhaust system and from the degreaser top opening, definite conclusions cannot be drawn about loss through the exhaust system alone. Comparisons can be made, however, between the effects of lip exhaust on operating and on idle degreasers.

Figure 31 presents the test results. The three data points at the lip exhaust rate of zero correspond to the degreaser with no exhaust system in use; all other data points correspond to the degreaser with the exhaust system on. When compared with a degreaser without the modification, an operating degreaser with lip exhaust had a rate of solvent loss about 110 percent higher at 0.25 m^3/s per m^2 (50 ft^3/min per ft^2), and 150 percent higher at 0.50 m^3/s per m^2 (100 ft^3/min per ft^2).

At an exhaust rate of 0.25 m^3/s per m^2 (50 ft^3/min per ft^2), the operating degreaser had about 20 percent higher solvent loss (by interpolation) than the idle degreaser; at 0.50 m^3/s per m^2 (100 ft^3/min per ft^2), it had about 16 percent less solvent loss than the idle degreaser at the corresponding exhaust rate.

Solvent loss from the idle degreaser with the exhaust system was less at 75 percent FR than at 50 percent FR. At a lip exhaust rate of 0.25 m^3/s per m^2 (50 ft^3/min per ft^2), the idle degreaser at 75 percent FR had about 55 percent less solvent loss than at 50 percent FR; it also had about 55 percent less solvent loss than the degreaser operating at 50 percent FR. At both 50 and 75 percent FR, solvent loss from the idle degreasers increased by 25 percent when the lip exhaust rate was increased from 0.25 to 0.50 m^3/s per m^2 (50 to 100 ft^3/min per ft^2).

Degreaser Size--

Solvent loss rates from a small and a large degreaser were compared. Both the larger degreaser (Degreaser A) and the smaller one (Degreaser C) used TE solvent in the test.

The data show that solvent loss from the large degreaser, which had a 1.39 m^2 (15 ft^2) top opening area, was about 300 to 400 percent greater than from the small degreaser, which had a 0.35 m^2 (3.78 ft^2) top opening area. Solvent loss per unit area from the large degreaser, however, was 28 to 35 percent greater than that loss from the small degreaser (Figure 19).

Measurement of Vapor Level Drop

It is difficult to measure the vapor level drop in the degreaser during load cleaning, but crude measurements were made from time to time. Table 28 presents relative data for estimated average vapor level drop as the basket descended into the degreaser.

TABLE 28. OBSERVED VAPOR LEVEL DATA

Item	Degreaser A or Degreaser B	Degreaser C
Basket height, cm (in.)	31 (12)	14 (5-1/2)
Load height in the basket, cm (in.)	15 to 20 (6 to 8)	10 (4)
Vapor zone height, cm (in.)	76 (30)	51 (20)
Position of the top of the basket during degreasing	Top goes 9 cm (3-1/2 in.) below the initial vapor level	Top goes 22 cm (8-1/2 in.) below the initial vapor level
Total vapor drop level during degreasing, using 1,1,1-trichloroethane, cm (in.)	25 (10)	25 (10)
Vapor recovery time, min	1-1/2	1-1/3

Table 29 presents calculated (theoretical) vapor level drop data for the degreasers. When a cold load was lowered into a vapor zone, the level of that zone dropped along with the load. The observed vapor level drop for the degreasers using TE was less than the calculated rate.

The discrepancy between the theoretical and the observed vapor level drop can be explained by assuming that, in the theoretical case, the load is descended into a degreaser with solvent vapor up to the vapor level and no further solvent vapor is generated. In the actual case, however, solvent vaporization and condensation were continuous. As a result, the theoretical vapor level drop calculations, which are based on load heat requirements and definite vapor heat content in the degreaser, may differ from the observed vapor level drop.

Table 30 presents solvent restoration (boilup) rate calculations.

Water Accumulation

Water that enters the degreaser system is collected by a water separator. Water can enter the degreaser system in several ways: condensation on the degreaser interior, including icing on refrigerated freeboard chiller coils and the trough beneath the coils when the chiller is on; and water brought in with the solvent (minute amounts of water may enter solvent

TABLE 29. VAPOR LEVEL DROP CALCULATIONS

Item	Degreasers A and B using 1,1,1-trichloroethane	Degreasers A and B using methylene chloride	Degreaser C using 1,1,1-trichloroethane
Hoist speed, m/s (ft/min)	0.04 (8)	0.04 (8)	0.04 (8)
Heat input at 100% capacity, kW kcal/min (Btu/min)	24 344 (1365)	12 172 (683)	8.5 122 (484)
Load input per cycle (excluding basket weight), kg (lb)	45.4 (100)	45.4 (100)	10.4 (23)
Solvent boiling point, °C (°F)	74 (165)	39 (103)	74 (165)
Vapor density, kg/m^3 (lb/ft^3)	0.45 (0.28)	0.30 (0.187)	0.45 (0.28)
Volume of solvent vapor, m^3 (ft^3)	1.08 (38)[a]	1.08 (38)[a]	0.08 (2.77)[b]
Weight of solvent vapor, kg (lb)	4.81 (10.6)	3.23 (7.11)	0.352 (0.776)
Latent heat content of solvent vapor, cal/g (Btu/lb)	57 (102)	78 (141)	57 (102)
Total heat in vapor zone, cal/cm (Btu/in.)	3572 (36.0)	3313 (33.4)	655 (6.60)
Heat of condensate,[c] kcal (Btu) per cycle	244 (968)	72 (286)	56 (223)
Calculated vapor drop height, cm (in.) per cycle	68.6 (27.0)	22.9 (8.6)	93.0 (33.7)

[a] Based on degreaser vapor level dimensions of 86.4 cm by 162.6 cm by 76.2 cm (34 in. by 64 in. by 30 in.).

[b] Based on degreaser vapor level dimensions of 63.5 cm by 40.6 cm by 30.5 cm (25 in. by 10 in. by 12 in.).

[c] Based on ambient temperature of 25°C (77°F) and heat capacity of 0.11 cal/g per °C (0.11 Btu/lb per °F) for the load.

TABLE 30. SOLVENT RESTORATION (BOILUP) RATE CALCULATIONS

Data	1,1,1-Trichloroethane	Methylene chloride
Molecular weight	133.42	85
Liquid density, kg/l (lb/gal)	1.3 (10.84)[a]	82.81[b]
Specific heat, cal/g per °C (Btu/lb per °F)	0.266	0.276
Latent heat, cal/g (Btu/lb)	58 (104)	78 (141)
Solvent vapor, kg/h (lb/h) per kW input	15.18 (33.46)[c]	10.98 (24.21)
Total solvent vapor generation rate, kg/h (lb/h)	364 (803)[d]	132 (291)[e]
Volume of solvent vapor generated, m^3/min (ft^3/min)	1.19 (42)	0.65 (23)
Height of solvent vapor generated,[f] cm/min (in./min)	84 (33)	46 (18)

[a] At 25°C (77°F) ambient temperature.

[b] At 20°C (68°F).

[c] Assuming radiation losses equal to solvent specific heat.

[d] At 24 kW input.

[e] At 12 kW input.

[f] For a cross-sectional area of 86 cm by 163 cm (34 in. by 64 in.).

storage from the atmosphere and other sources). Water also condenses on the outside of the degreaser walls when the chiller is on, but this water does not enter the water separator.

Several precautions were taken during the tests to monitor water accumulation and to eliminate its effect on solvent loss readings. When the degreaser had not been used for a long time, after solvent changeover, or when an unknown quantity of water had entered the system, the degreaser was run at idle with the solvent boiling for 16 hours or overnight for the purpose of moving the water into the water separator. Water separators were also emptied before and after each test. Samples of reservoir solvent were checked thoroughly before many tests to ensure that water was not being retained in the degreaser.

During the test program, water was occasionally found and removed from the water separators immediately after solvent changeover and degreaser startup. With one exception, no water accumulated in either degreaser during tests with and without the use of refrigerated freeboard chiller, although frosting of chiller coils was observed on Degreaser B during tests of refrigerated freeboard chiller. No evidence of water content was found in the frost. Representatives of the manufacturers of the test degreasers observed test operation and indicated that the lack of water in the separators was not unusual.

The exception occurred during two tests with RFC II operating at -29° to -40° C (-20° to -40°F). Ice accumulated on the trough below the chiller coils for Degreaser B when using TE. Before these tests, similar tests were conducted with MC and no ice buildup was observed anywhere in the degreaser. All the ice that accumulated during the two TE tests was condensed at the end of the tests by turning off the water supply to the primary condenser and allowing hot vapors to rise up in the degreaser. (The ice did not melt during the defrost cycle because of the cold temperature of the coils.) The water that collected in the water separator after this procedure was negligible in comparison with hourly solvent loss.

SECTION 4

ECONOMIC EVALUATIONS

The economic impact of selected degreaser modifications is discussed in this section. Because the solvent loss capability of a modification is not proportional to its cost, no direct relationship exists between evaluation of solvent loss reduction capability and economic benefit. (It is possible that a modification that is less efficient in reducing solvent loss may prove to be more cost-effective.)

METHODOLOGY

The typical degreaser, which is the base case for the evaluation, has a 50 percent freeboard ratio, uses a 50 percent load area and has no refrigerated freeboard chiller. The modifications evaluated are freeboard ratio, refrigerated freeboard chiller, load area, hoist speed, lip exhaust, crosscurrent air velocity, and lid. Several of these--hoist speed, load size, crosscurrent air velocity--are operational practices rather than actual modifications. They have a considerable effect on solvent loss and thus on degreaser economics.

The modifications are evaluated economically on the basis of the additional costs they bring to degreaser operation. The capital costs and those of operation and maintenance are considered.

These costs are different for new and for retrofit installations. A new installation is one in which the modification is built into the degreaser at the factory. A retrofit is added at a later time on the site. This report presents cost evaluations for both new and retrofit installations of degreaser modifications. All the costs are given in 1979 dollars.

COST ELEMENTS

Capital Cost

The capital cost of a modification includes purchase price, installation, engineering, and startup. Freight is considered as part of the purchase price.

Annual Operating Costs

Annual operating costs are the total of fixed charges (capital charges, insurance, and maintenance) and direct operating costs. Direct operating costs include the costs of maintenance, labor, replacement parts, utilities that are incurred because of the modification, and credits from the savings in the solvent loss over the base case.

Annual capital charges are calculated using a 10 percent interest rate and a 12 year equipment life. Estimate of equipment life is based on conversations with manufacturers. The capital charges are equivalent to 14.676 percent of the total capital cost. Insurance and taxes are estimated at 4 percent of the capital cost; maintenance and labor, at 2 percent. Costs of replacement parts are based on information supplied by the manufacturers. Utility costs are based on $0.04 per kWh.

Capital and Operating Costs of Various Modifications

A brief description of the cost of each modification (i.e., the cost as it exceeds that for a base case degreaser) is given in Appendix D.

Refrigerator Freeboard Chiller--

Cost estimates for refrigerated freeboard chillers are based on information from the manufacturers of the test degreaser units. RFC I has a refrigeration system that includes a 1.12 kW (1½-hp) compressor. According to the manufacturer, the size of the chiller is based on the solvent used. Fifty percent more refrigeration is needed for new or retrofit installations of RFC II on degreasers using MC than on degreasers using TE. In the latter case, a 0.75 kW (1-hp) compressor is sufficient.

The capital cost of a refrigerated freeboard chiller in a new installation is limited to the price of the factory-installed chiller. The capital cost of a retrofit chiller also covers installation, including refrigeration, electrical plumbing (if water cooled), and mechanical connection.

The primary operating cost of a chiller is that of the additional utilities. These costs are based on energy-use data accumulated during testing, and assume a rate of $0.04/kWh and 8000 h/yr operation (regardless of the number of shifts of degreaser operation).

RFC I (operating at temperatures above freezing) installed at the factory on a new degreaser costs $3300 above the cost of the degreaser. A similar retrofit unit costs $4000. Annual utility costs are $223 for both new and retrofit units. An RFC II (operating at temperatures below freezing) costs $3717 when installed at the factory. A similar retrofit unit costs $7340. Annual utility costs are estimated at $341 for both new and retrofit units.

The cost of RFC II is based on a 1.12 kW (1½-hp) compressor. Replacement parts are assumed to be the same as that of the degreaser.

Additional operating and maintenance costs depend upon the condenser type, whether air cooled or water cooled; they are also negligible. Air-cooled condensers usually cost less than water-cooled units. Water-cooled units need virtually no maintenance; at the most, dirt may accumulate on the condenser tubes and need to be chemically removed once a year. Air-cooled condensers require air blowing for cleaning purposes about every two months. Total maintenance of a secondary freeboard chiller may amount to 8 man-hours per year.

Load Area (Oversized Basket)--

The typical cross-sectional area is a 50 percent ratio of load to degreaser top opening. A 70 percent ratio, which allows a heavier load, is not common. Loads are usually placed in a basket for easy movement into and out of the degreaser. The load cross-sectional area can be defined as the size of the basket in which the load is placed. In the test program, two baskets, sized at 50 and 70 percent ratios of load to degreaser top, were used, and the same load was placed in both. The equal weights used in the tests should be considered when evaluating the economic and solvent loss data in the report.

The capital cost of the modification is limited to the purchase of a new basket. A basket that is 70 percent of the size of the degreaser top open area costs about $242. A hot dip galvanized basket that is 50 percent of this area costs about $164. Installation costs are negligible. A retrofit installation of a basket sized at 70 percent requires the purchase of a new basket and retirement of the basket sized at 50 percent, with no salvage value. No installation, engineering, startup, replacement parts, or utilities are required. The additional cost of a new basket sized at 70 percent is thus equal to the difference in the price of the baskets, or $78. The calculation is based on the assumption that a choice is made between the two options when a new degreaser is ordered, and only the cost differential can be charged to the modification.

Hoist Speed--

The capital cost of modifying the hoist speed on a new degreaser installation is an estimated premium of $50 for a hoist with a chain speed of 0.08 m/s (16 ft/min) versus one with a chain speed of 0.04 m/s (8 ft/min). In a retrofit modification, the cost includes the purchase and installation of a new hoist and scrapping of the old hoist. The cost is $609 for the hoist and $120 for the installation; engineering and startup costs are estimated to be zero.

Annual utility costs are estimated to be the same for a hoist speed of 0.08 m/s (16 ft/min) and one of 0.04 m/s (8 ft/min); therefore, no additional utility charges are added to the modification costs. Replacement parts are also estimated to be zero.

During the tests, the number of cycles was held the same for both the 0.04- and 0.08-m/s (8- and 16-ft/min) hoist speeds. As a result, the number of loads did not change when the hoist speed did. It can be estimated, however, that 2 minutes can be saved per 6.5-minute cycle by using an 0.08-m/s (16-ft/min) hoist speed. The potential increase in work capacity is 31 percent, but the solvent loss also increases with the number of cycles per hour.

Lip Exhaust--

The capital cost of a lip exhaust system includes the lip exhaust manifold, exhaust fan, connecting ductwork, and exterior outlet. Installation, engineering, and startup costs are additional for a retrofit modification. Annual operating costs include electricity to operate the fan. According to season, the makeup air exhausted from the fan must be heated or cooled to maintain comfortable working conditions, however, an air-conditioned shop is unlikely.

The cost of the lip exhaust system is $1330, and the estimated installation cost is $90. Engineering and startup costs are estimated at zero. Annual electricity expenses are about $60, and the cost of heating the load (based on use of natural gas) is about $343. Both of these costs assume an operating schedule of one shift per day. Costs for replacement parts are considered negligible.

The main function of the lip exhaust is to segregate the solvent loss emissions from the degreaser by routing them to connecting equipment or to the atmosphere. In this study, no efforts were made to measure the rate of solvent loss through the exhaust system. No economic evaluation of lip exhaust was made from the data.

Crosscurrent Air Velocity--

Increased crosscurrent air velocities involve no additional capital costs. The only additional annual cost is from the solvent that is lost per year.

Lid--

Because the lid is an integral part of a standard degreaser, it involves no additional capital costs.

ECONOMIC SUMMARY

The economic evaluations of the modifications tested are summarized in tabular form in Appendix D. These evaluations include data on capital and annual operating costs, net profit (or loss), ratio of savings to cost, payback period, and capacity lost because of the modification. Idle degreasers cannot be compared with the base case and as a result they are excluded from the evaluations. Three schedules for using the degreasers are considered: one, two, or three shifts per day (2000, 4000, or 6000 h/yr).

Degreaser utilization has a significant impact on the evaluations. All the manufacturers agree that degreaser life is unaffected by using it for more than one shift a day. Consequently, the credit (or expenditure) resulting from solvent savings (or loss) is increased twofold and threefold when the degreaser is operated 4000 and 6000 hours per year instead of 2000 hours; however, the annual operating costs (capital charges, insurance and taxes, maintenance and labor) remain the same. In other words, the effectiveness (savings or expenditure) of a given modification is multiplied as the degreaser is used more. A degreaser with a given modification that operates 2000 hours per year and has a minimum solvent savings rate is least profitable (or expensive); while the degreaser with the same modification that operates 6000 hours per year and has a maximum solvent savings rate is most profitable (or expensive).

For some of the modifications, special attention should be paid to aspects of their operation that affect the savings or expenditures. In an actual degreaser operation, the large load basket (at 70 percent ratio) is used to degrease a heavier load per unit of time. Similarly, a faster hoist speed means shorter cycle time (i.e., more cleaning cycles per unit of time). In the test program, however, the load weight and the total cycle time were held constant. For other modifications, such as freeboard ratio and refrigerated freeboard chiller, economic evaluations are useful.

Another key factor in the economic evaluations is whether the installation is new or retrofitted. The credits (or expenditures) that are gained from solvent loss reduction (or increase) are the same in both cases, whereas the annual operating costs are always higher in retrofit installations. Consequently, a new installation of a degreaser modification is economically more effective than the corresponding retrofit installation.

The ratio of savings to cost that is calculated in each table has no significance except to indicate the monetary value of the modification. Because only secondary chillers involve any significant capital annual operating costs, the calculation of payback period is of little importance in most cases. Where the modifications result in a net loss, no payback period is calculated.

The lost capacity is the difference between the load that can be cleaned after modification and the load that can be cleaned under base conditions. Only the modifications of freeboard ratio involve lost capacity. The increased ratio results in a longer hoist traveling time, which in turn slows the movement of the load from floor to platform to basket. The operating cycle is longer than in the base case, and less load is thus cleaned per unit of time. The extent of this lost capacity increases as the freeboard ratio increases, and depends also upon the hoist speed and cycle time. The percentage of lost capacity is expressed in the following equation:

$$\left[1 - \frac{vt}{vt + 4x}\right] 100$$

where t = present cycle time, min

v = hoist speed, m/min (ft/min)

x = increase in freeboard, m (ft).

During the test program, the total time of the degreasing cycle was held constant when the hoist speed changed. Therefore, tests run at a hoist speed of 0.08 m/s (16 ft/min) show no difference in lost capacity from those run at 0.04 m/s (8 ft/min).

Of all the modifications evaluated, only changes in freeboard ratio show a definite economic benefit. Capital costs are low and annual operating costs are negligible (refer to the tables for specific values). The savings in solvent loss are substantially greater than the expenses incurred by the modification. Lost capacity has not been figured into the profitability calculations, but this negative effect is not expected to have a significant impact.

The other modifications have less of a capacity either to reduce solvent loss or to do so on an economic basis.

SECTION 5

CONCLUSIONS AND RECOMMENDATIONS

The solvent loss capabilities of the various modifications are summarized in Tables 31 and 32. A graphic summary is shown in Figures 32 and 33. An analysis was also made of the relative economic benefits of the modifications. This analysis is summarized in Tables 33 and 34.

The following conclusions can be derived from the data. Under all conditions, increased freeboard ratio decreased solvent loss. On idle degreasers, refrigerated freeboard chillers either had no effect or increased solvent loss. On operating degreasers, chillers decreased solvent loss better when operated at lower temperatures. Load area of 70 percent increased solvent loss. The rate of solvent loss was directly proportional to the size of the degreaser top opening.

With one exception, degreaser operation under any of the modifications (including freeboard chiller) and using TE resulted in less solvent loss than the base case. (Base case or typical degreaser operation is 50 percent FR, 50 percent load area at 0.04 m/s or 8 ft/min hoist speed.) The exception--the modification that resulted in more solvent loss--was operation without RFC at either hoist speed and cleaning a 70 percent load area; and operation without RFC at 0.08 m/s (16 ft/min) hoist speed, 50 percent load area, and FR at or below 75 percent.

At 50 percent FR, the only degreaser operation using MC that resulted in less solvent loss than the base case was use of RFC at -29° to -40°C (-20° to -40°F); all other modifications had more solvent loss. At increased FR, all modifications had less solvent loss except operation with no RFC, a 70 percent load area, and FR below 125 percent; and operation with RFC I, cleaning a 70 percent load area, and FR at or below 100 percent.

For degreasers using 1,1,1-trichloroethane, the best solvent loss control was achieved by any of the following modifications:

Incorporation of RFC II at -29° to -40°C (-20° to -40°F) on degreasers with at least 75 percent FR.

TABLE 31. EFFECT ON SOLVENT LOSS REDUCTION OF VARIOUS MODIFICATIONS TO AN OPERATING DEGREASER USING 1,1,1-TRICHLOROETHANE
(percentage of reduction or increase over the base case[a])

Freeboard ratio,[b] %	Hoist speed, 0.04 m/s[c]							Hoist speed, 0.08 m/s[d] RFC: Off	
	Load area:[e] 50%				Load area: 70%				
	RFC:[f] Off	RFC I 1° to 2°C[g]	RFC II -23° to -32°C[h]	RFC II -29° to -40°C[i]	RFC: Off	RFC I 1° to 2°C	RFC II -23° to -32°C	Load area: 50%	Load area: 70%
50	0[a]	5	8	2	(5-23)[j]		14	(11)	(50)
75	7-25	8	18	46				16	
100	47-53							9	
125		34	47	51	(3)-4	27	34	20	(5)

[a] Base case: FR = 50, RFC: Off, hoist speed = 0.04 m/s, load cross-sectional area = 50%.

[b] Ratio of freeboard height to degreaser width.

[c] 8 ft/min.

[d] 16 ft/min.

[e] Ratio of load cross-sectional area to degreaser top opening.

[f] Refrigerated freeboard chiller.

[g] 34° to 36°F.

[h] -10° to -25°F.

[i] -20° to -40°F.

[j] Percentages in parentheses represent increases in solvent loss over the base case.

TABLE 32. EFFECT ON SOLVENT LOSS REDUCTION OF VARIOUS MODIFICATIONS TO AN OPERATING DEGREASER USING METHYLENE CHLORIDE AT A HOIST SPEED OF 0.04 m/s[a]

(percentage of decrease or increase over the base case[b])

Freeboard ratio,[c] %	Load area:[d] 50%			Load area: 70%		
	RFC:[e] Off	RFC I 1° to 2°C[f]	RFC II -29° to -40°C[g]	RFC: Off	RFC I 1° to 2°C	RFC II -29° to -40°C
50	0	(4)[g]	16	(53)	(39)	(5)
75	17-22	5	46			
125	25	25	61	9	22	44

[a] 8 ft/min.

[b] Base case: FR = 50, RFC: Off, hoist speed = 0.04 m/s, load cross-sectional area = 50%.

[c] Ratio of freeboard height to degreaser width.

[d] Ratio of load cross-sectional area to degreaser top opening.

[e] Refrigerated freeboard chiller.

[f] 34° to 36°F.

[g] -20° to -40°F.

[h] Percentages in parentheses represent increases in solvent loss over the base case.

Evaluate power-operated lid.

Evaluate effect of humidity on low temperature chiller.

Degreaser equipped with 100 percent FR.

Incorporation of RFC II at -23° to -32°C (-10° to -25°F) on degreasers with at least 100 percent FR.

Although all of these modifications are profitable, the use of a degreaser equipped with 100 percent FR is economically and technically the best control.

For degreasers using methylene chloride, the best solvent loss control is achieved by the following modification:

Incorporation of RFC II at -29° to -40°C (-20° to -40°F) on degreasers with 125 percent FR.

Although this modification is technically effective, it is not economically profitable.

Caution should be used in evaluating the results of the refrigerated freeboard chiller at -29° to -40°C because the possible impact of high humidity has not been studied. Testing to date has been under conditions where little or no water was condensed on the chiller coils.

The degreaser evaluations in this study are based on tests conducted under ideal conditions of calm air velocities within the testroom. Further, only a limited number of variables were tested. Future studies of degreaser systems should be directed toward evaluations that will apply to actual degreaser operations and that will include a greater number of variables. Recommendations follow:

Simulate all the present test conditions at higher air velocities. The combined data will provide degreaser evaluations for various air velocities.

Evaluate the effect of load weight on solvent loss from operating degreasers by using different load weights.

Evaluate the effect of increased or decreased cycle time and determine its relation to hoist speed.

Conduct tests to determine whether refrigerated freeboard chiller temperature and blanket temperature are interrelated.

Make accurate and continuous measurements of vapor level drop during load cleaning in degreasers operating with various modifications. Compare the vapor level drop observation with theoretical estimates.

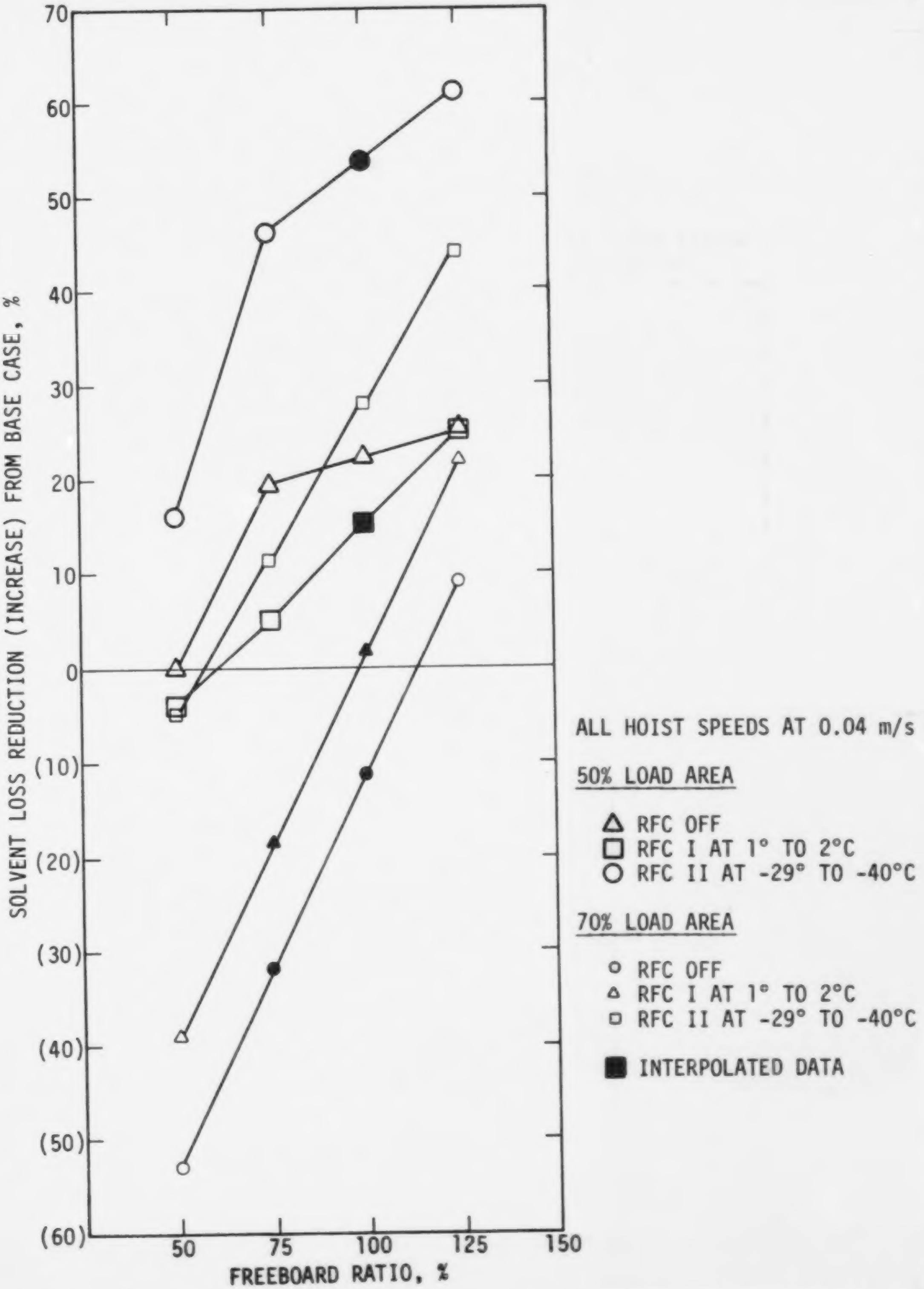


Figure 33. Summary of solvent loss reduction capabilities of various modifications to degreaser using methylene chloride.

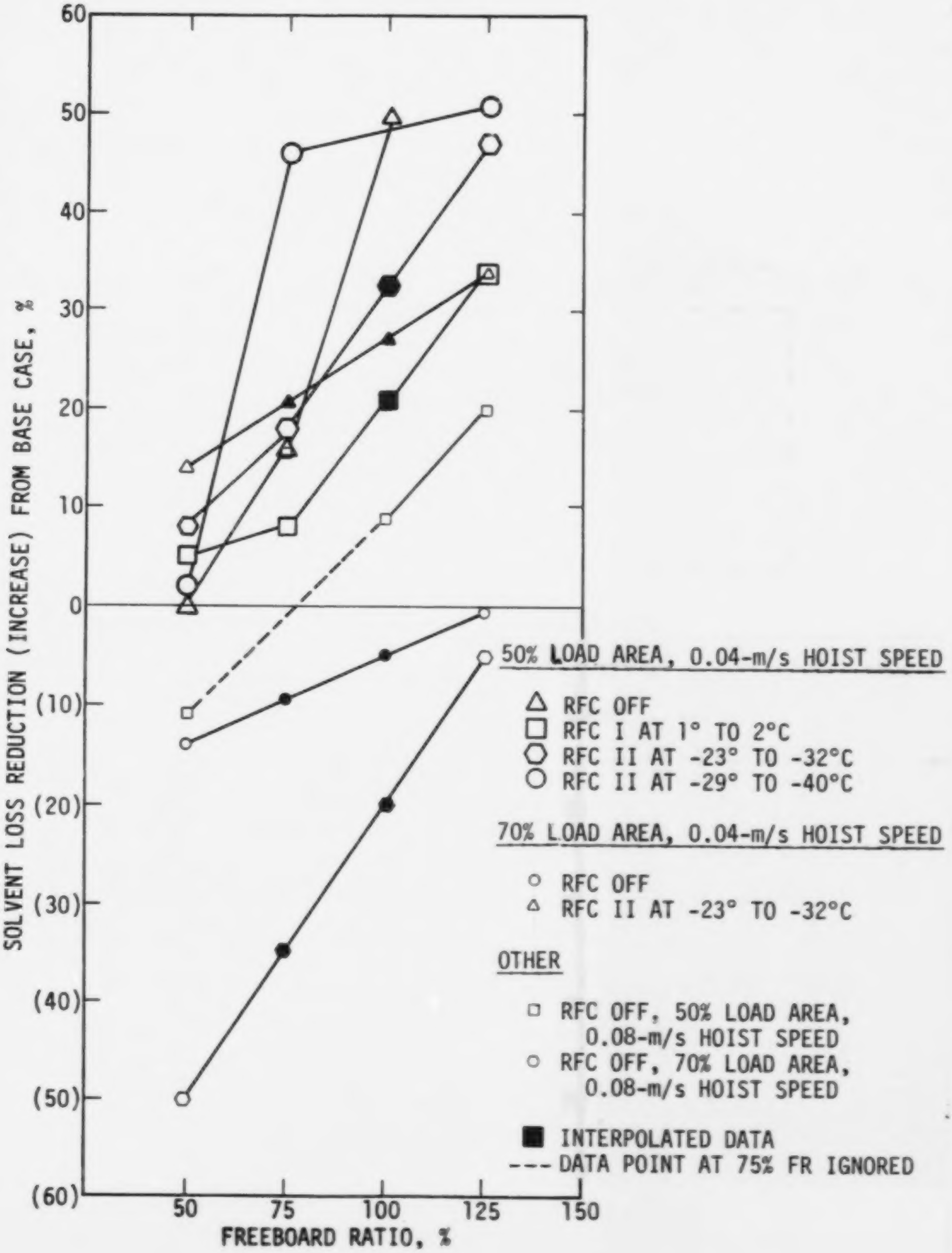


Figure 32. Summary of solvent loss reduction capabilities of various modifications to degreaser using 1,1,1-trichloroethane.

TABLE 34. ANNUAL SAVINGS RESULTING FROM MODIFICATIONS TO A DEGREASER USING METHYLENE CHLORIDE AND OPERATING ONLY ONE SHIFT PER DAY AT A HOIST SPEED OF 0.04 m/s (8 ft/min)[a] (1979 dollars)

Freeboard ratio,[b] %	Load area: 50%[c]			Load area: 70%		
	RFC:[d] Off	RFC I 1° to 2°C[e]	RFC II -29° to -40°C[f]	RFC: Off	RFC I 1° to 2°C	RFC II -29° to -40°C
50	0	(1179)[g]	(902)	(535-743)	(1310)	(1191)
75	173-186	(887)	(522)			
125	172-289	(733)	(354)	0-13	(759)	(591)

[a] Profit due to solvent savings less the cost and operation of modification.

[b] Lost capacity resulting from increasing freeboard ratio not included in analyses.

[c] Ratio of load cross-sectional area to degreaser top opening.

[d] Refrigerated freeboard chiller.

[e] 34° to 36°F.

[f] -20° to -40°F.

[g] Values in parentheses represent losses.

TABLE 33. ANNUAL SAVINGS RESULTING FROM MODIFICATIONS TO A DEGREASER USING 1,1,1-TRICHLOROETHANE AND OPERATING ONLY ONE SHIFT PER DAY[a],[b] (1979 dollars)

Freeboard	Hoist speed, 0.04 m/s[c]							Hoist speed, 0.08 m/s[d] RFC: Off	
	Load area: 50%[e]				Load area: 70%				
ratio,	RFC:[f]	RFC I	RFC II		RFC:	RFC I	RFC II	Load area:	Load area:
%	Off	1° to 2°C[g]	-23° to -32°C[h]	-29° to -40°C[i]	Off	1° to 2°C	-23° to -32°C	50%	70%
50	0	(834)[j]	(997)	(1082)	(87-355)		(929)	(166)	(760)
75	51-291	(778)	(1031)	(523)				168	
100	629-686							56	
125		(590)	(521)	(260)	(34-133)	(586)	(735)	197	(171)

[a] Profit due to solvent savings less the cost and operation of modification.

[b] Lost capacity resulting from increase in freeboard ratio not included in analysis.

[c] 8 ft/min.

[d] 16 ft/min.

[e] Ratio of load cross-sectional area to degreaser top opening.

[f] Refrigerated freeboard chiller.

[g] 34° to 36°F.

[h] -10° to -25°F.

[i] -20° to -40°F.

[j] Values in parentheses represent losses.

APPENDIX A

REDUCTION OF TEST DATA

The raw data are given in the series of tables (A-1 through A-161) following these pages. Almost every test is represented by two tables, one for each degreaser used. The top portion of the table identifies the test number, date, ambient conditions, and the degreaser and its operating parameters.* The body of the table consists of successive readings of degreaser weights at different test times and reduced data showing the rate of solvent loss under given conditions.

The successive data points (or test readings) are identified by a number, starting at 1. Data points having no numbers (which are located at the beginning and end of some of the tables) are from readings taken during the solvent heating period at the beginning of the test and the solvent cooling period at the end; these readings were not considered in solvent loss rate evaluations. Reading No. 1 represents the data point taken after the equilibrium condition was reached. This condition was assumed to be attained when the solvent in the degreaser was completely boiling and a definite and stable vapor line had been established at the top of the degreaser. Reading No. 1 was usually taken a half hour after equilibrium was reached. In tests of operating degreasers, hoist operation (load cleaning) was started when Reading No. 1 was taken.

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* In the tables, freeboard ratio (FR) is represented by FB; refrigerated freeboard chiller (RFC) is represented by SC.

The items presented in the table are explained below:

T: Time (in minutes) when the degreaser was weighed.

W: Total weight (in pounds) of the degreaser, as measured by the two separate scales for each degreaser. All the weighings were made when the load was out of the degreaser.

ΔT: Difference between the successive T readings, converted to hours.

ΔW: Difference between the successive W readings, in pounds.

$\Sigma\Delta T$: Cumulative time difference (i.e., difference between the corresponding T reading and the first T reading), converted to hours.

$\Sigma\Delta W$: Cumulative weight loss (i.e., difference between the corresponding W reading and the first W reading). These values are all given as negative numbers, which represent the cumulative decrease in the weight.

$\frac{\Delta W}{\Delta T}$: Solvent loss between successive readings, expressed as pounds per hour.

$\frac{\Sigma\Delta W}{\Sigma\Delta T}$: Cumulative solvent loss, expressed as pounds per hour.

$\bar{x}$: Average of successive cumulative weight loss rates ($\frac{\Sigma\Delta W}{\Sigma\Delta T}$), expressed as pounds per hour.

For each test, the solvent loss rate from each degreaser is estimated by relating the cumulative solvent loss ($\Sigma\Delta W$), which is a dependent variable, with the cumulative time ($\Sigma\Delta T$), which is an independent variable. The relationship is given by a simple regression equation:

$$(\Sigma\Delta W) = a + b\,(\Sigma\Delta T) \qquad \text{(Eq. A-1)}$$

Coefficients a and b are evaluated by using the least squares method, which minimize the square of the difference between the predicted value and the experimental value of the dependent variable. Once the coefficients have been determined, they can be used in Equation A-1 to calculate the total solvent loss in a given amount of time. Because Reading No. 1 is always the starting point (i.e., $\Sigma\Delta W$ and $\Sigma\Delta T$ are zero at that reading), a plot of $\Sigma\Delta W$s vs. $\Sigma\Delta T$s theoretically should pass through the origin (i.e., intercept a should be zero). The value of coefficient a is negligible, and it has been omitted from the calculations. Coefficient b of the regression equation was thus used as the solvent loss rate under the given conditions. This coefficient is the crucial element that has been used for the degreaser evaluation.

Confidence intervals were calculated at 95 percent to obtain an indication of the accuracy of b. These interval estimates are a range of values that can be expected to include the correct value up to 95 percent of the time, which is a measure of the error involved in the estimate.

The confidence interval for the solvent loss rate at b, and the other terms for obtaining it, are presented on the last sheet of each table. An explanation of the items follows:

n: The number of data points used in the analysis.

Slope: The coefficient b of the regression equation. (The slope is a positive value. It is shown here as a negative number because the test readings were given as decreases in total degreaser weight.)

Intercept: The coefficient a of the regression equation. (When this value appears in a table as a negative number, the actual value is positive, and vice versa. The reason for this reversal was noted in the preceding item.)

S_{yx}: The standard deviation of the dependent variable $\Sigma\Delta W$ for a fixed $\Sigma\Delta T$.

$$S_{yx} = [(\Sigma(\Sigma\Delta W)^2 - a\Sigma(\Sigma\Delta W) - b\Sigma(\Sigma\Delta W)(\Sigma\Delta T))/n-2]^{\frac{1}{2}} \quad \text{(Eq. A-2)}$$

S_x: The standard deviation of $\Sigma\Delta T$.

$$S_x = \{[n\Sigma(\Sigma\Delta x)^2(\Sigma(\Sigma\Delta T))^2]/n-2\}^{\frac{1}{2}} \quad \text{(Eq. A-3)}$$

S_a: $$S_a = \frac{S_{yx}}{S_x \sqrt{n-1}} \quad \text{(Eq. A-4)}$$

S_b: The S_b term that is calculated here is of no use for estimating the confidence interval. (The term is designed to estimate the confidence interval for b.)

$$S_b = \frac{1}{n} + \frac{(\bar{x})^2}{(n-1)(S_x)^2} \qquad \text{(Eq. A-5)}$$

S_c: The standard deviation of $\frac{\Delta W}{\Delta T}$.

$t_{\alpha}/_2$: Value of Student 't' for n-2 degrees of freedom at 95 percent confidence levels.

r: The correlation coefficient. The r value is also a positive number.

$$r = \frac{\Sigma(\Sigma\Delta W)(\Sigma\Delta T)}{[\Sigma(\Sigma\Delta W)^2][\Sigma(\Sigma\Delta T)^2]} \qquad \text{(Eq. A-6)}$$

CI: The confidence interval (CI) is given in the following equation:

$$CI = \text{slope } b \pm t_{\alpha/2}\ S_a \qquad \text{(Eq. A-7)}$$

The correlation coefficient (r) is a measure of the degree of closeness of the linear relationship between the two variables. The r is a pure number, it has no dimensions, and it always falls between -1 and +1. Positive values of r indicate a tendency of the dependent variable ΣΔW and independent variable ΣΔT to increase together. Negative values of r indicate the association of large values of ΣΔW with small values of ΣΔT. A perfect correlation is indicated by r = 1.

TABLE A-1 SUMMARY OF DATA FROM TEST NO. 1-A

Page 1 of 4

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC ____ A 50 %
Inlet air ____ Exhaust air x V 8 ft/min
Other

Date 10/10/78.
Ambient air
Temperature 61 °F
Pressure 25.67 in. Hg
Humidity 88 %

Reading No.			1.	2.	3.	4.
T, min	85.000	100.000	166.000	222.000	272.000	340.000
W, lb	3601.900	3613.100	3615.300	3613.700	3612.100	3609.500
ΔT, h				0.933	0.833	1.133
ΔW, lb				-1.600	-1.600	-2.600
ΣΔT, h				0.933	1.767	2.900
ΣΔW, lb				-1.600	-3.200	-5.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h				-1.714	-1.920	-2.294
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h				-1.714	-1.811	-2.000
$\bar{X}$, lb/h				-1.714	-1.763	-1.842

TABLE A-1. (continued) Page 2 of 4

Reading No.	5.	6.	7.	8.	9.	10.
T, min	391.000	456.000	515.000	573.000	664.000	695.000
W, lb	3608.200	3605.500	3602.900	3600.600	3597.200	3595.900
ΔT, h	0.850	1.083	0.983	0.967	1.517	0.517
ΔW, lb	-1.300	-2.700	-2.600	-2.300	-3.400	-1.300
ΣΔT, h	3.750	4.833	5.817	6.783	8.300	8.817
ΣΔW, lb	-7.100	-9.800	-12.400	-14.700	-18.100	-19.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.529	-2.492	-2.644	-2.379	-2.242	-2.516
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-1.893	-2.028	-2.132	-2.167	-2.181	-2.200
$\bar{X}$, lb/h	-1.855	-1.889	-1.930	-1.964	-1.991	-2.014

(continued)

TABLE A-1. (continued) Page 3 of 4

Reading No.	11.	12.	13.	14.	15.	16.
T, min	755.000	814.000	885.000	931.000	1004.000	1068.000
W, lb	3592.700	3590.500	3588.000	3585.500	3582.300	3579.500
ΔT, h	1.000	0.983	1.183	0.767	1.217	1.067
ΔW, lb	-3.200	-2.200	-2.500	-2.500	-3.200	-2.800
$\Sigma\Delta T$, h	9.817	10.800	11.983	12.750	13.967	15.033
$\Sigma\Delta W$, lb	-22.600	-24.800	-27.300	-29.800	-33.000	-35.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.200	-2.237	-2.113	-3.261	-2.630	-2.625
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.302	-2.296	-2.278	-2.337	-2.363	-2.381
$\bar{X}$, lb/h	-2.043	-2.066	-2.084	-2.103	-2.122	-2.139

(continued)

TABLE A-1. (continued) Page 4 of 4

Reading No.	17.	18.	19.	20.		
T, min	1112.000	1171.000	1230.000	1260.000	1263.000	
W, lb	3577.200	3574.900	3572.500	3570.600	3551.900	
ΔT, h	0.733	0.983	0.983	0.500		
ΔW, lb	-2.300	-2.300	-2.400	-1.900		
$\Sigma \Delta T$, h	15.767	16.750	17.733	18.233		
$\Sigma \Delta W$, lb	-38.100	-40.400	-42.800	-44.700		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.136	-2.339	-2.441	-3.800		
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-2.416	-2.412	-2.414	-2.452		
$\bar{X}$, lb/h	-2.156	-2.171	-2.185	-2.199		

n	19	S_{yx}	0.591	$t_{\alpha/2}$	2.110
Slope	-2.509	S_x	5.565	**r**	-0.999
Intercept	1.955	S_a	0.025	**Confidence interval**	
		S_b	0.226	2.509 ± 0.053	
		S_c	0.552		

TABLE A-2. SUMMARY OF DATA FROM TEST NO. 1-A

Page 1 of 4

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC ____ A 50 %
Inlet air ____ Exhaust air x V 8 ft/min
Other

Date 10/10/78
Ambient air
Temperature 61 °F
Pressure 29.67 in. Hg
Humidity 88 %

Reading No.			1.	2.	3.	4.
T, min	90.	100.	165.000	226.000	294.000	346.000
W, lb	2758.3	2774.1	2767.100	2764.100	2760.500	2759.300
ΔT, h				1.017	1.133	0.867
ΔW, lb				-3.000	-3.600	-1.200
ΣΔT, h				1.017	2.150	3.017
ΣΔW, lb				-3.000	-6.600	-7.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h				-2.951	-3.176	-1.385
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h				-2.951	-3.070	-2.586
$\bar{X}$, lb/h				-2.951	-3.010	-2.869

TABLE A-2. (continued) **Page** 2 **of** 4

Reading No.	5.	6.	7.	8.	9.	10.
T, min	413.000	466.000	525.000	584.000	650.000	701.000
W, lb	2756.000	2753.800	2751.700	2750.500	2748.700	2746.700
ΔT, h	1.117	0.883	0.983	0.983	1.100	0.850
ΔW, lb	-3.300	-2.200	-2.100	-1.200	-1.800	-2.000
$\Sigma\Delta T$, h	4.133	5.017	6.000	6.983	8.083	8.933
$\Sigma\Delta W$, lb	-11.100	-13.300	-15.400	-16.600	-18.400	-20.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.955	-2.491	-2.136	-1.220	-1.636	-2.353
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.685	-2.651	-2.567	-2.377	-2.276	-2.284
$\bar{X}$, lb/h	-2.823	-2.789	-2.752	-2.698	-2.645	-2.605

(continued)

TABLE A-2 (continued) Page 3 of 4

Reading No.	11.	12.	13.	14.	15.	16.
T, min	765.000	825.000	883.000	946.000	1006.000	1078.000
W, lb	2743.700	2744.000	2740.500	2738.400	2738.000	2733.500
ΔT, h	1.067	1.000	0.967	1.050	2.000	1.200
ΔW, lb	-3.000	0.300	-3.500	2.100	-0.400	-4.500
ΣΔT, h	10.000	11.000	11.967	13.017	14.017	15.217
ΣΔW, lb	-23.400	-23.100	-26.600	28.700	-29.100	-33.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.812	0.300	-3.621	2.000	-0.200	-3.750
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-2.340	-2.100	-2.223	2.205	-2.076	-2.208
$\bar{X}$, lb/h	-2.579	-2.535	-2.509	2.486	-2.470	-2.452

(continued)

TABLE A-2. (continued) Page 4 of 4

Reading No.	17.	18.	19.	20.	21.	22.
T, min	1123.000	1195.000	1254.000	1304.000	1364.000	1422.000
W, lb	2731.600	2728.000	2725.600	2725.500	2723.200	2721.000
ΔT, h	0.750	1.200	0.983	0.833	1.000	0.967
ΔW, lb	-1.900	-3.600	-2.400	-0.100	-2.300	-2.200
$\Sigma\Delta T$, h	15.967	17.167	18.150	18.983	19.983	20.950
$\Sigma\Delta W$, lb	-35.500	-39.100	-41.500	-41.600	-43.900	-46.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.533	-3.000	-2.441	-0.120	-2.300	-2.276
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.223	-2.278	-2.287	-2.191	-2.197	-2.200
$\bar{X}$, lb/h	-2.438	-2.428	-2.421	-2.408	-2.398	-2.388

n	21	S_{yx}	0.921	$t_{\alpha/2}$	2.093
Slope	-2.113	S_x	6.200	r	+1.000
Intercept	-1.671	S_a	0.033	Confidence interval	
		S_b	0.206	2.113 ± 0.069	

TABLE A-4 SUMMARY OF DATA FROM TEST NO. 2

Page 1 of 1

Degreaser B, idle

Solvent: 1,1,1-Trichloroethane
(Boiling ___; nonboiling x)
FB 50 % PC ___ SC ___ A 0 %
Inlet air ___ Exhaust air ___ V 0 ft/min
Other
Lid closed

Date 10/12/78
Ambient air
Temperature 71 °F
Pressure 29.73 in. Hg
Humidity 70 %

Reading No.	1.	2.				
T, min	0.000	940.000				
W, lb	2486.700	2485.200				
ΔT, h		15.667				
ΔW, lb		-1.500				
ΣΔT, h		15.667				
ΣΔW, lb		-1.500				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.096				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-0.096				
$\bar{X}$, lb/h		-0.096				

TABLE A-3 SUMMARY OF DATA FROM TEST NO. 2 Page 1 of 1

Degreaser A, idle

Solvent: 1,1,1-Trichloroethane
(Boiling ___; nonboiling x)
FB 50 % PC ___ SC ___ A 0 %
Inlet air ___ Exhaust air ___ V 0 ft/min
Other
Lid closed

Date 10/12/78
Ambient air
Temperature 71 °F
Pressure 29.73 in. Hg
Humidity 70 %

Reading No.	1.	2.				
T, min	0.000	940.000				
W, lb	3590.000	3588.500				
ΔT, h		15.667				
ΔW, lb		-1.500				
$\Sigma\Delta T$, h		15.667				
$\Sigma\Delta W$, lb		-1.500				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.096				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-0.096				
$\bar{X}$, lb/h		-0.096				

TABLE A-5 SUMMARY OF DATA FROM TEST NO. 3

Page 1 of 1

Degreaser A, idle

Solvent: 1,1,1-Trichloroethane
(Boiling ___; nonboiling x)
FB 50 % PC ___ SC ___ A 0 %
Inlet air ___ Exhaust air ___ V 0 ft/min
Other

Date 10/16/78
Ambient air
Temperature 60 °F
Pressure 29.56 in. Hg
Humidity 62 %

Reading No.	1.	2.				
T, min	0.000	1310.000				
W, lb	3580.500	3576.600				
ΔT, h		21.833				
ΔW, lb		-3.900				
ΣΔT, h		21.833				
ΣΔW, lb		-3.900				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.179				
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h		-0.179				
$\bar{X}$, lb/h		-0.179				

TABLE A-6 SUMMARY OF DATA FROM TEST NO. 3 Page 1 of 1

Degreaser B, idle.

Solvent: 1,1,1-Trichloroethane
(Boiling ____; nonboiling x)
FB 50 % PC ____ SC ____ A 0 %
Inlet air ____ Exhaust air ____ V 0 ft/min
Other

Date 10/16/78
Ambient air
Temperature 60 °F
Pressure 23.56 in. Hg
Humidity 62 %

Reading No.	1.	2.				
T, min	0.000	1310.000				
W, lb	3180.100	3178.000				
ΔT, h		21.833				
ΔW, lb		-2.100				
ΣΔT, h		21.833				
ΣΔW, lb		-2.100				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.096				
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h		-0.096				
$\bar{X}$, lb/h		-0.096				

TABLE A-7 SUMMARY OF DATA FROM TEST NO. 4

Page 1 of 1

Degreaser A, idle

Solvent: 1,1,1-Trichloroethane
(Boiling ___; nonboiling x)
FB 50 % PC ___ SC ___ A 0 %
Inlet air ___ Exhaust air ___ V 0 ft/min
Other

Date 10/19/78
Ambient air
Temperature 69 °F
Pressure 25.64 in. Hg
Humidity 68 %

Reading No.	1.	2.				
T, min	0.000	6915.000				
W, lb	3578.000	3565.500				
ΔT, h		115.250				
ΔW, lb		12.500				
ΣΔT, h		115.250				
ΣΔW, lb		12.500				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		0.108				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		0.108				
$\bar{X}$, lb/h		0.108				

TABLE A-8 SUMMARY OF DATA FROM TEST NO. 4

Page 1 of 1

Degreaser B, idle

Solvent: 1,1,1-Trichloroethane
(Boiling ____; nonboiling x)
FB 50 % PC ____ SC ____ A 0 %
Inlet air ____ Exhaust air ____ V 0 ft/min
Other

Date 10/19/78
Ambient air
Temperature 69 °F
Pressure 29.64 in. Hg
Humidity 68 %

Reading No.	1.	2.				
T, min	0.000	6915.000				
W, lb	3161.400	3153.600				
ΔT, h		115.250				
ΔW, lb		7.800				
ΣΔT, h		115.250				
ΣΔW, lb		7.800				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		0.068				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		0.068				
$\bar{X}$, lb/h		0.068				

TABLE A-9 SUMMARY OF DATA FROM TEST NO. 5

Page 1 of 1

Degreaser A, idle

Solvent: 1,1,1-Trichloroethane
(Boiling ___; nonboiling x)
FB 50 % PC ___ SC ___ A 0 %
Inlet air ___ Exhaust air ___ V 0 ft/min
Other

Date 10/27/78
Ambient air
Temperature 54 °F
Pressure 29.64 in. Hg
Humidity 73%

Reading No.	1.	2.				
T, min	0.000	3930.000				
W, lb	3563.200	3559.750				
ΔT, h		65.500				
ΔW, lb		3.450				
ΣΔT, h		65.500				
ΣΔW, lb		3.450				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		0.053				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		0.053				
$\bar{X}$, lb/h		0.053				

TABLE A-10 SUMMARY OF DATA FROM TEST NO. 5

Page 1 of 1

Degreaser B, idle

Solvent: 1,1,1-Trichloroethane
(Boiling ____; nonboiling x)
FB 50 % PC ____ SC ____ A 0 %
Inlet air ____ Exhaust air ____ V 0 ft/min
Other

Date 10/27/78
Ambient air
Temperature 54 °F
Pressure 29.64 in. Hg
Humidity 73 %

Reading No.	1.	2.				
T, min	0.000	3930.000				
W, lb	2854.900	2851.700				
ΔT, h		65.500				
ΔW, lb		3.200				
ΣΔT, h		65.500				
ΣΔW, lb		3.200				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		0.049				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		0.049				
$\bar{X}$, lb/h		0.049				

TABLE A-11 SUMMARY OF DATA FROM TEST NO. 6

Page 1 of 2

Degreaser A, idle

Solvent: 1,1,1-Trichloroethane
(Boiling x ; nonboiling ___)
FB 50 % PC x SC ___ A 50 %
Inlet air ___ Exhaust air ___ V 8 ft/min
Other

Date 11/3/78
Ambient air
Temperature 76 °F
Pressure 29.71 in. Hg
Humidity 46 %

Reading No.		1.	2.	3.	4.	
T, min	0.000	78.000	140.000	197.000	262.000	327.000
W, lb	3670.300	3683.000	3680.100	3678.900	3675.000	3657.900
ΔT, h			1.033	0.950	1.083	
ΔW, lb			-2.900	-1.200	-3.900	
ΣΔT, h			1.033	1.983	3.067	
ΣΔW, lb			-2.900	-4.100	-8.000	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			-2.806	-1.263	-3.600	
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h			-2.806	-2.067	-2.609	
$\bar{X}$, lb/h			-2.806	-2.437	-2.494	

TABLE A-11 (continued) Page 2 of 2

Reading No.						
T, min						
W, lb						
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n 3

Slope -2.534

Intercept 0.138

S_{yx} 0.965

S_x 1.017

S_a 0.671

S_b 2.320

$t_{\alpha/2}$ 12.706

r -1.000

Confidence interval

2.534 ± 8.526

S_c 1.188

TABLE A-12 SUMMARY OF DATA FROM TEST NO. 6

Page 1 of 2

Degreaser B, idle

Solvent: 1,1,1-Trichloroethane
(Boiling x ; nonboiling ___)
FB 50 % PC x SC ___ A 50 %
Inlet air ___ Exhaust air ___ V 8 ft/min
Other

Date 11/3/78
Ambient air
Temperature 76 °F
Pressure 29.71 in. Hg
Humidity 46 %

Reading No.		1.	2.	3.	4.	
T, min	0.000	120.000	185.000	246.000	302.000	380.000
W, lb	2808.400	2808.400	2806.100	2805.100	2802.300	2788.600
ΔT, h			1.083	1.017	0.933	
ΔW, lb			-3.800	-1.000	-2.800	
$\Sigma\Delta T$, h			1.083	2.100	3.033	
$\Sigma\Delta W$, lb			-3.800	-4.800	-7.600	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			-3.508	-0.984	-3.000	
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h			-3.508	-2.286	-2.505	
$\bar{X}$, lb/h			-3.508	-2.897	-2.766	

TABLE A-12 (continued) Page 2 of 2

Reading No.						
T, min						
W, lb						
ΔT, h						
ΔW, lb						
ΣΔT, h						
ΣΔW, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n 3

Slope -1.934

Intercept -1.392

S_{yx} 0.801

S_x 0.975

S_a 0.581

S_b 2.591

$t_{\alpha/2}$ 12.706

r -1.000

Confidence interval

1.934 ± 7.382

S_c 1.335

TABLE A-13 SUMMARY OF DATA FROM TEST NO. 7

Page 1 of 5

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC - A 50 %
Inlet air - Exhaust air x V 8 ft/min
Other

Date 10/12/78
Ambient air
Temperature 65 °F
Pressure 29.72 In. Hg
Humidity 52 %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	0.000	58.000	117.000	174.000	240.000	298.020
W, lb	3616.000	3613.500	3611.900	3609.600	3607.200	3604.500
ΔT, h		0.967	0.983	0.950	1.100	0.967
ΔW, lb		-2.500	-1.600	-2.300	-2.400	-2.700
ΣΔT, h		0.967	1.950	2.900	4.000	4.967
ΣΔW, lb		-2.500	-4.100	-6.400	-8.800	-11.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-2.586	-1.627	-2.421	-2.182	-2.792
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-2.586	-2.103	-2.207	-2.200	-2.315
$\bar{X}$, lb/h		-2.586	-2.344	-2.299	-2.274	-2.282

TABLE A-13 (continued) **Page** 2 **of** 5

Reading No.	7.	8.	9.	10.	11.	12.
T, min	362.040	414.060	472.080	531.060	596.040	655.020
W, lb	3602.000	3599.800	3597.000	3594.200	3592.100	3589.600
ΔT, h	1.067	0.867	0.967	0.983	1.083	0.983
ΔW, lb	-2.500	-2.200	-2.800	-2.800	-2.100	-2.500
ΣΔT, h	6.034	6.901	7.868	8.851	9.934	10.917
ΣΔW, lb	-14.000	-16.200	-19.000	-21.800	-23.900	-26.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.343	-2.537	-2.896	-2.848	-1.939	-2.543
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.320	-2.347	-2.415	-2.463	-2.406	-2.418
$\bar{X}$, lb/h	-2.289	-2.297	-2.312	-2.328	-2.336	-2.344

(continued)

TABLE A-13 (continued)

Page 3 of 5

Reading No.	13.	14.	15.	16.	17.	18.
T, min	715.020	777.000	835.020	898.020	954.000	1012.020
W, lb	3588.300	3586.200	3587.000	3580.700	3579.500	3576.800
ΔT, h	1.000	1.033	0.967	1.050	0.933	0.967
ΔW, lb	-1.300	-2.100	0.800	-6.300	-1.200	-2.700
ΣΔT, h	11.917	12.950	13.917	14.967	15.900	16.867
ΣΔW, lb	-27.700	-29.800	-29.000	-35.300	-36.500	-39.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.300	-2.033	0.827	-6.000	-1.286	-2.792
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.324	-2.301	-2.084	-2.359	-2.296	-2.324
$\bar{X}$, lb/h	-2.342	-2.339	-2.321	-2.323	-2.322	-2.322

(continued)

TABLE A-13 (continued) Page 4 of 5

Reading No.	19.	20.	21.	22.	23.	24.
T, min	1071.000	1129.980	1194.000	1252.020	1317.000	1378.980
W, lb	3574.500	3572.200	3570.500	3569.000	3567.300	3565.600
ΔT, h	0.983	0.983	1.067	0.967	1.083	1.033
ΔW, lb	-2.300	-2.300	-1.700	-1.500	-1.700	-1.700
$\Sigma\Delta T$, h	17.850	18.833	19.900	20.867	21.950	22.983
$\Sigma\Delta W$, lb	-41.500	-43.800	-45.500	-47.000	-48.700	-50.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.340	-2.340	-1.593	-1.551	-1.570	-1.646
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.325	-2.326	-2.286	-2.252	-2.219	-2.193
$\bar{X}$, lb/h	-2.322	-2.322	-2.320	-2.317	-2.313	-2.307

(continued)

TABLE A-13 (continued) Page 5 of 5

Reading No.	25.					
T, min	1440.000					
W, lb	3563.700					
ΔT, h	1.017					
ΔW, lb	-1.900					
ΣΔT, h	24.000					
ΣΔW, lb	-52.300					
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.868					
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.179					
$\bar{X}$, lb/h	-2.302					

n	24	S_{yx}	1.111	$t_{\alpha/2}$	2.074
Slope	-2.27	S_x	7.061	r	-0.999
Intercept	-0.813	S_a	0.033	Confidence interval	
		S_b	0.176	2.27 ± 0.068	
		S_c	1.130		

TABLE A-15 SUMMARY OF DATA FROM TEST NO. 7 Page 1 of 5

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC ____ A 50 %
Inlet air ____ Exhaust air x V 8 ft/min
Other

Date 11/12/78
Ambient air
Temperature 65 °F
Pressure 29.72 in. Hg
Humidity 52 %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	0.000	58.980	117.000	175.020	233.040	292.020
W, lb	2789.500	2787.700	2787.100	2785.100	2783.900	2782.100
ΔT, h		0.983	0.967	0.967	0.967	0.983
ΔW, lb		-1.800	-0.600	-2.000	-1.200	-1.800
ΣΔT, h		0.983	1.950	2.917	3.884	4.867
ΣΔW, lb		-1.800	-2.400	-4.400	-5.600	-7.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-1.831	-0.620	-2.068	-1.241	-1.831
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-1.831	-1.231	-1.508	-1.442	-1.520
$\bar{X}$, lb/h		-1.831	-1.531	-1.523	-1.503	-1.507

TABLE A-14 (continued) Page 2 of 5

Reading No.	7.	8.	9.	10.	11.	12.
T, min	363.000	415.020	473.040	533.040	591.060	655.080
W, lb	2778.500	2776.800	2775.700	2772.200	2769.500	2767.700
ΔT, h	1.183	0.867	0.967	1.000	0.967	1.067
ΔW, lb	-3.600	-1.700	-1.100	-3.500	-2.700	-1.800
$\Sigma\Delta T$, h	6.050	6.917	7.884	8.884	9.851	10.918
$\Sigma\Delta W$, lb	-11.000	-12.700	-13.800	-17.300	-20.000	-21.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.043	-1.961	-1.138	-3.500	-2.792	-1.687
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.818	-1.836	-1.750	-1.947	-2.030	-1.997
$\bar{X}$, lb/h	-1.558	-1.598	-1.617	-1.654	-1.691	-1.719

(continued)

TABLE A-14 (continued)

Page 3 of 5

Reading No.	13.	14.	15.	16.	17.	18.
T, min	714.060	779.040	831.060	895.080	949.080	1012.680
W, lb	2765.300	2762.900	2760.000	2756.500	2755.200	2751.300
ΔT, h	0.983	1.083	0.867	1.067	0.900	1.060
ΔW, lb	-2.400	-2.400	-2.900	-3.500	-1.300	-3.900
$\Sigma\Delta T$, h	11.901	12.984	13.851	14.918	15.818	16.878
$\Sigma\Delta W$, lb	-24.200	-26.600	-29.500	-33.000	-34.300	-38.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.442	-2.216	-3.345	-3.280	-1.444	-3.679
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.033	-2.049	-2.130	-2.212	-2.168	-2.263
$\bar{X}$, lb/h	-1.745	-1.769	-1.795	-1.822	-1.844	-1.869

(continued)

TABLE A-14 (continued)

Page 4 of 5

Reading No.	19.	20.	21.	22.	23.	24.
T, min	1070.700	1129.680	1193.700	1251.720	1317.720	1381.740
W, lb	2749.600	2748.000	2745.000	2744.800	2742.100	2738.000
ΔT, h	0.967	0.983	1.067	0.967	1.100	1.067
ΔW, lb	-1.700	-1.600	-3.000	-0.200	-2.700	-4.100
ΣΔT, h	17.845	18.828	19.895	20.862	21.962	23.029
ΣΔW, lb	-39.900	-41.500	-44.500	-44.700	-47.400	-51.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.758	-1.628	-2.812	-0.207	-2.455	-3.843
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.236	-2.204	-2.237	-2.143	-2.158	-2.236
$\bar{X}$, lb/h	-1.889	-1.906	-1.922	-1.933	-1.943	-1.956

(continued)

TABLE A-14 (continued) Page 5 of 5

Reading No.	25.					
T, min	1434.720					
W, lb	2739.000					
ΔT, h	0.883					
ΔW, lb	1.000					
$\Sigma\Delta T$, h	23.912					
$\Sigma\Delta W$, lb	-50.500					
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	1.133					
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.112					
$\bar{X}$, lb/h	-1.962					

n	24	S_{yx}	1.122	$t_{\alpha/2}$	2.074
Slope	-2.314	S_x	7.062	r	-0.998
Intercept	2.707	S_a	0.033	Confidence interval	
		S_b	0.176	2.314 ± 0.068	
		S_c	1.171		

TABLE A-15 SUMMARY OF DATA FROM TEST NO. 8 Page 1 of 3

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC - A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 11/13/78
Ambient air
Temperature - °F
Pressure - in. Hg
Humidity - %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	0.000	52.980	111.000	169.980	234.980	292.980
W, lb	3630.800	3628.500	3625.900	3623.400	3621.800	3620.000
ΔT, h		0.883	0.967	0.983	1.083	0.967
ΔW, lb		-2.300	-2.600	-2.500	-1.600	-1.800
$\Sigma\Delta T$, h		0.883	1.850	2.833	3.916	4.883
$\Sigma\Delta W$, lb		-2.300	-4.900	-7.400	-9.000	-10.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-2.605	-2.689	-2.543	-1.477	-1.862
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-2.605	-2.649	-2.612	-2.298	-2.212
$\bar{X}$, lb/h		-2.605	-2.627	-2.622	-2.541	-2.475

TABLE A-15 (continued) ' Page 2 of 3

Reading No.	7.	8.	9.	10.	11.	12.
T, min	351.960	417.960	468.960	533.940	592.920	650.940
W, lb	3617.100	3615.100	3612.600	3609.700	3606.700	3605.600
ΔT, h	0.983	1.100	0.850	1.083	0.983	0.967
ΔW, lb	-2.900	-2.000	-2.500	-2.900	-3.000	-1.100
$\Sigma\Delta T$, h	5.866	6.966	7.816	8.899	9.882	10.849
$\Sigma\Delta W$, lb	-13.700	-15.700	-18.200	-21.100	-24.100	-25.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.950	-1.818	-2.941	-2.678	-3.052	-1.138
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.335	-2.254	-2.329	-2.371	-2.439	-2.323
$\bar{X}$, lb/h	-2.452	-2.424	-2.412	-2.407	-2.410	-2.402

(continued)

TABLE A-15 (continued) , Page 3 of 3

Reading No.	13.	14.	15.	16.		
T, min	709.920	773.940	827.940	891.960		
W, lb	3603.600	3601.300	3599.400	3596.500		
ΔT, h	0.983	1.067	0.900	1.067		
ΔW, lb	-2.000	-2.300	-1.900	-2.900		
$\Sigma\Delta T$, h	11.832	12.899	13.799	14.866		
$\Sigma\Delta W$, lb	-27.200	-29.500	-31.400	-34.300		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.035	-2.156	-2.111	-2.718		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.299	-2.287	-2.276	-2.307		
$\bar{X}$, lb/h	-2.394	-2.386	-2.378	-2.373		

n	15	S_{yx}	0.499	$t_{\alpha/2}$	2.160
Slope	-2.28	S_x	4.463	r	-1.000
Intercept	-0.419	S_a	0.030	**Confidence interval**	
		S_b	0.289	2.28 ± 0.065	
		S_c	0.573		

TABLE A-16 SUMMARY OF DATA FROM TEST NO. 8

Page 1 of 3

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 50 %
Inlet air x
Other

PC x
Exhaust air x

SC -

A 50 %
V 8 ft/min

Date 11/13/78
Ambient air
Temperature - °F
Pressure - in. Hg
Humidity - %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	0.000	61.980	118.980	177.960	235.980	301.980
W, lb	2802.500	2801.300	2799.100	2797.500	2796.100	2796.900
ΔT, h		1.033	0.950	0.983	0.967	1.100
ΔW, lb		-1.200	-2.200	-1.600	-1.400	0.800
$\Sigma\Delta T$, h		1.033	1.983	2.966	3.933	5.033
$\Sigma\Delta W$, lb		-1.200	-3.400	-5.000	-6.400	-5.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-1.162	-2.316	-1.628	-1.448	0.727
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-1.162	-1.715	-1.686	-1.627	-1.113
$\bar{X}$, lb/h		-1.162	-1.438	-1.521	-1.547	-1.460

TABLE A-16 (continued)

Page 2 of 3

Reading No.	7.	8.	9.	10.	11.	12.
T, min	354.000	418.980	471.960	541.980	594.000	652.980
W, lb	2792.200	2790.400	2787.300	2784.400	2783.400	2781.000
ΔT, h	0.867	1.083	0.883	1.167	0.867	0.983
ΔW, lb	-4.700	-1.800	-3.100	-2.900	-1.000	-2.400
$\Sigma\Delta T$, h	5.900	6.983	7.866	9.033	9.900	10.883
$\Sigma\Delta W$, lb	-10.300	-12.100	-15.200	-18.100	-19.100	-21.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-5.421	-1.662	-3.511	-2.485	-1.153	-2.442
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.746	-1.733	-1.932	-2.004	-1.929	-1.976
$\bar{X}$, lb/h	-1.508	-1.540	-1.589	-1.635	-1.665	-1.693

(continued)

TABLE A-16 (continued) Page 3 of 3

Reading No.	13.	14.	15.	16.		
T, min	711.960	786.960	834.960	892.980		
W, lb	2778.400	2775.500	2773.600	2772.400		
ΔT, h	0.983	1.250	0.800	0.967		
ΔW, lb	-2.600	-2.900	-1.900	-1.200		
$\Sigma\Delta T$, h	11.866	13.116	13.916	14.883		
$\Sigma\Delta W$, lb	-24.100	-27.000	-28.900	-30.100		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.645	-2.320	-2.375	-1.241		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.031	-2.059	-2.077	-2.022		
$\bar{X}$, lb/h	-1.721	-1.747	-1.771	-1.787		

n	15	S_{yx}	1.114	$t_{\alpha/2}$	2.160
Slope	-2.130	S_x	4.451	r	-0.997
Intercept	2.136	S_a	0.067	Confidence interval	
		S_b	0.295	2.130 ± 0.145	
		S_c	1.339		

TABLE A-17 SUMMARY OF DATA FROM TEST NO. 9

Page 1 of 2

Degreaser A, idle

Solvent: 1,1,1-Trichloroethane
(Boiling x ; nonboiling ___)
FB 50 % PC x SC - A 0 %
Inlet air - Exhaust air - V 0 ft/min
Other

Date 11/14/78
Ambient air
Temperature 70 °F
Pressure 29.71 in. Hg
Humidity 28 %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	0.000	57.000	116.000	178.000	242.000	296.000
W, lb	3619.400	3615.700	3613.200	3611.300	3610.800	3609.500
ΔT, h		0.950	0.983	1.033	1.067	0.900
ΔW, lb		-3.700	-2.500	-1.900	-0.500	-1.300
ΣΔT, h		0.950	1.933	2.967	4.033	4.933
ΣΔW, lb		-3.700	-6.200	-8.100	-8.600	-9.900
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-3.895	-2.542	-1.839	-0.469	-1.444
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-3.895	-3.207	-2.730	-2.132	-2.007
$\bar{X}$, lb/h		-3.895	-3.551	-3.277	-2.991	-2.794

TABLE A-17 (continued)

Page 2 of 2

Reading No.	7.	8.	9.			
T, min	362.000	418.000	476.000			
W, lb	3606.600	3605.700	3603.600			
ΔT, h	1.100	0.933	0.967			
ΔW, lb	-2.900	-0.900	-2.100			
$\Sigma\Delta T$, h	6.033	6.967	7.933			
$\Sigma\Delta W$, lb	-12.800	-13.700	-15.800			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.636	-0.964	-2.172			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.122	-1.967	-1.992			
$\bar{X}$, lb/h	-2.682	-2.580	-2.506			

n 8

Slope -1.804

Intercept -2.543

S_{yx} 0.575

S_x 2.454

S_a 0.089

S_b 0.599

S_c 1.074

$t_{\alpha/2}$ 2.447

r -0.993

Confidence interval

1.804 ± 0.218

TABLE A-18 SUMMARY OF DATA FROM TEST NO. 9 ' Page 1 of 2

Degreaser B, idle

Solvent: 1,1,1-Trichloroethane
(Boiling x ; nonboiling ___)
FB 50 % PC x SC x A 0 %
Inlet air - Exhaust air x V 0 ft/min
Other

Date 11/14/78
Ambient air
Temperature 70 °F
Pressure 29.71 in. Hg
Humidity 28 %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	0.000	55.000	115.000	172.000	239.000	294.000
W, lb	2806.000	2801.800	2800.700	2801.300	2800.500	2799.900
ΔT, h		0.917	1.000	0.950	1.117	0.917
ΔW, lb		-4.200	-1.100	0.600	-0.800	-0.600
ΣΔT, h		0.917	1.917	2.867	3.983	4.900
ΣΔW, lb		-4.200	-5.300	-4.700	-5.500	-6.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-4.582	-1.100	0.632	-0.716	-0.655
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-4.582	-2.765	-1.640	-1.381	-1.245
$\bar{X}$, lb/h		-4.582	-3.674	-2.996	-2.592	-2.322

TABLE A-16 (continued) , Page 2 of 2

Reading No.	7.	8.	9.			
T, min	353.000	415.000	475.000			
W, lb	2798.300	2797.200	2796.900			
ΔT, h	0.983	1.033	1.000			
ΔW, lb	-1.600	-1.100	-0.300			
ΣΔT, h	5.883	6.917	7.917			
ΣΔW, lb	-7.700	-8.800	-9.100			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.627	-1.065	-0.300			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.309	-1.272	-1.149			
$\bar{X}$, lb/h	-2.154	-2.028	-1.918			

n 8

Slope -0.94

Intercept -3.199

S_{yx} 0.597

S_x 2.449

S_a 0.092

S_b 0.589

S_c 1.528

$t_{\alpha/2}$ 2.447

r -0.972

Confidence interval

0.94 ± 0.225

TABLE A-19 SUMMARY OF DATA FROM TEST NO. 10

Page 1 of 2

Degreaser A, idle

Solvent: 1,1,1-Trichloroethane
(Boiling x ; nonboiling ___)
FB 50 % PC x SC x A 0 %
Inlet air - Exhaust air x V 0 ft/min
Other

Date 11/15/78
Ambient air
Temperature 63 °F
Pressure 29.75 in. Hg
Humidity 44 %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	0.000	60.000	120.000	175.000	236.000	295.000
W, lb	3605.000	3604.600	3601.400	3600.500	3599.900	3598.900
ΔT, h		1.000	1.000	0.917	1.017	0.983
ΔW, lb		-0.400	-3.200	-0.900	-0.600	-1.000
$\Sigma\Delta T$, h		1.000	2.000	2.917	3.933	4.917
$\Sigma\Delta W$, lb		-0.400	-3.600	-4.500	-5.100	-6.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.400	-3.200	-0.982	-0.590	-1.017
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-0.400	-1.800	-1.543	-1.297	-1.241
$\bar{X}$, lb/h		-0.400	-1.100	-1.248	-1.260	-1.256

TABLE A-19 (continued)

Page 2 of 2

Reading No.	7.	8.				
T, min	356.000	426.000				
W, lb	3596.000	3594.800				
ΔT, h	1.017	1.167				
ΔW, lb	-2.900	-1.200				
$\Sigma\Delta T$, h	5.933	7.100				
$\Sigma\Delta W$, lb	-9.000	-10.200				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.852	-1.029				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.517	-1.437				
$\bar{X}$, lb/h	-1.299	-1.319				

n 7

Slope -1.456

Intercept 0.339

S_{yx} 0.766

S_x 2.174

S_a 0.144

S_b 0.699

S_c 1.115

$t_{\alpha/2}$ 2.571

r -0.994

Confidence interval

1.456 ± 0.370

TABLE A-20 SUMMARY OF DATA FROM TEST NO. 11

Page 1 of 2

Degreaser B, idle

Solvent: 1,1,1-Trichloroethane
(Boiling x ; nonboiling ___)
FB 50 % PC x SC x A 0 %
Inlet air - Exhaust air x V 0 ft/min
Other

Date 11/15/78
Ambient air
Temperature 63 °F
Pressure 29.75 in. Hg
Humidity 44 %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	0.000	64.000	122.000	178.000	240.000	299.000
W. lb	2791.100	2789.100	2787.000	2781.200	2779.600	2777.300
ΔT, h		1.067	0.967	0.933	1.033	0.983
ΔW, lb		-2.000	-2.100	-5.800	-1.600	-2.300
ΣΔT, h		1.067	2.033	2.967	4.000	4.983
ΣΔW, lb		-2.000	-4.100	-9.900	-11.500	-13.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-1.875	-2.172	-6.214	-1.548	-2.339
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-1.875	-2.016	-3.337	-2.875	-2.769
$\bar{X}$, lb/h		-1.875	-1.946	-2.409	-2.526	-2.575

TABLE A-20 (continued) Page 2 of 2

Reading No.	7.	8.				
T, min	359.000	425.000				
W, lb	2775.200	2772.200				
ΔT, h	1.000	1.100				
ΔW, lb	-2.100	-3.000				
$\Sigma\Delta T$, h	5.983	7.083				
$\Sigma\Delta W$, lb	-15.900	-18.900				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.100	-2.727				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.657	-2.668				
$\bar{X}$, lb/h	-2.588	-2.600				

n	7	S_{yx}	1.164	$t_{\alpha/2}$	2.571
Slope	-2.765	S_x	2.158	r	-0.997
Intercept	0.333	S_a	0.220	**Confidence interval**	
		S_b	0.720	2.765 ± 0.566	
		S_c	1.588		

TABLE A-21 SUMMARY OF DATA FROM TEST NO. 11

Page 1 of 2

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC x A 50 %
Inlet air - Exhaust air x V 8 ft/min
Other

Date 11/15/78
Ambient air
Temperature 65 °F
Pressure - in. Hg
Humidity 65 %

Reading No.		1.	2.	3.	4.	5.
T, min	0.000	22.000	80.000	159.000	198.000	256.000
W, lb	3603.900	3614.100	3609.900	3605.400	3604.000	3601.100
ΔT, h			0.967	1.317	0.650	0.967
ΔW, lb			-4.200	-4.500	-1.400	-2.900
$\Sigma\Delta T$, h			0.967	2.283	2.933	3.900
$\Sigma\Delta W$, lb			-4.200	-8.700	-10.100	-13.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			-4.345	-3.418	-2.154	-3.000
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h			-4.345	-3.810	-3.443	-3.333
$\bar{X}$, lb/h			-4.345	-4.078	-3.866	-3.733

TABLE A-21 (continued)

Page 2 of 2

Reading No.	6.	7.	8.			
T, min	321.000	380.000	445.000	476.000		
W, lb	3598.400	3595.600	3593.000	3580.000		
ΔT, h	1.083	0.983	1.083			
ΔW, lb	-2.700	-2.800	-2.600			
$\Sigma \Delta T$, h	4.983	5.967	7.050			
$\Sigma \Delta W$, lb	-15.700	-18.500	-21.100			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.492	-2.847	-2.400			
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-3.151	-3.101	-2.993			
$\bar{X}$, lb/h	-3.616	-3.530	-3.454			

n	7	S_{yx}	0.333	$t_{\alpha/2}$	2.571
Slope	-2.92	S_x	2.138	r	-0.998
Intercept	-2.024	S_a	0.064	**Confidence interval**	
		S_b	0.730	2.92 ± 0.165	
		S_c	0.744		

TABLE A-22 SUMMARY OF DATA FROM TEST NO. 11 Page 1 of 2

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

Date 11/15/78
Ambient air
Temperature 65 °F
Pressure - in. Hg
Humidity 65 %

FB 50 % PC x SC x A 50 %
Inlet air - Exhaust air x V 8 ft/min
Other

Reading No.		1.	2.	3.	4.	5.
T, min	0.000	17.000	82.000	160.000	212.000	258.000
W, lb	2788.500	2790.200	2795.600	2789.700	2796.400	2794.000
ΔT, h			1.083	1.300	0.867	0.767
ΔW, lb			5.400	-5.900	6.700	-2.400
ΣΔT, h			1.083	2.383	3.250	4.017
ΣΔW, lb			5.400	-0.500	6.200	3.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			4.985	-4.538	7.731	-3.130
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h			4.985	-0.210	1.908	0.946
$\bar{X}$, lb/h			4.985	2.387	2.228	1.907

TABLE A-22 (continued)

Page 2 of 2

Reading No.	6.	7.	8.			
T, min	323.000	381.000	443.000	509.000		
W, lb	2791.500	2785.700	2783.300	2758.100		
ΔT, h	1.083	0.967	1.033			
ΔW, lb	-2.500	-5.800	-2.400			
$\Sigma\Delta T$, h	5.100	6.067	7.100			
$\Sigma\Delta W$, lb	1.300	-4.500	-6.900			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.308	-6.000	-2.323			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	0.255	-0.742	-0.972			
$\bar{X}$, lb/h	1.577	1.190	0.881			

n 7

Slope -1.858

Intercept 8.382

S_{yx} 3.366

S_x 2.107

S_a 0.652

S_b 0.787

S_c 5.120

$t_{\alpha/2}$ 2.571

r -0.198

Confidence interval

1.858 ± 1.676

TABLE A-23 SUMMARY OF DATA FROM TEST NO. 12

Page 1 of 2

Degreaser A, idle

Solvent: 1,1,1-Trichloroethane
(Boiling x ; nonboiling ___)
FB 50 % PC x SC x A 0 %
Inlet air - Exhaust air x V 0 ft/min
Other Lid closed

Date 11/16/78
Ambient air
Temperature 65 °F
Pressure - in. Hg
Humidity 42 %

Reading No.		1.	2.	3.	4.	5.
T, min	0.000	9.000	66.000	127.000	198.000	248.000
W, lb	3614.600	3623.000	3622.800	3621.800	3623.000	3622.200
ΔT, h			0.950	1.017	1.183	0.833
ΔW, lb			-0.200	-1.000	1.200	-0.800
ΣΔT, h			0.950	1.967	3.150	3.983
ΣΔW, lb			-0.200	-1.200	0.000	-0.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			-0.211	-0.984	1.014	-0.960
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h			-0.211	-0.610	0.000	-0.201
$\bar{X}$, lb/h			-0.211	-0.410	-0.274	-0.255

TABLE A-23 (continued)

Reading No.	6.	7.	8.			
T, min	310.000	375.000	438.000	453.000		
W, lb	3621.500	3622.400	3625.900	3608.400		
ΔT, h	1.033	1.083	1.050			
ΔW, lb	-0.700	0.900	3.500			
$\Sigma\Delta T$, h	5.017	6.100	7.150			
$\Sigma\Delta W$, lb	-1.500	-0.600	2.900			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.677	0.831	3.333			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-0.299	-0.098	0.406			
$\bar{X}$, lb/h	-0.264	-0.236	-0.145			

n	8	S_{yx}	1.401	$t_{\alpha/2}$	2.447
Slope	0.321	S_x	2.218	r	0.088
Intercept	-1.499	S_a	0.258	**Confidence interval**	
		S_b	0.697		± 0.631

TABLE A-24 SUMMARY OF DATA FROM TEST NO. 12

Page 1 of 2

Degreaser B, idle

Solvent: 1,1,1-Trichloroethane
(Boiling x ; nonboiling ___)
FB 50 % PC x SC x A 0 %
Inlet air - Exhaust air x V 0 ft/min
Other Lid closed

Date 11/16/78
Ambient air
Temperature 65 °F
Pressure - in. Hg
Humidity 42 %

Reading No.		1.	2.	3.	4.	5.
T, min	0.000	67.000	127.000	186.000	255.000	305.000
W, lb	2778.600	2775.900	2773.400	2770.700	2767.400	2765.900
ΔT, h			1.000	0.983	1.150	0.833
ΔW, lb			-2.500	-2.700	-3.300	-1.500
ΣΔT, h			1.000	1.983	3.133	3.967
ΣΔW, lb			-2.500	-5.200	-8.500	-10.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			-2.500	-2.746	-2.870	-1.800
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h			-2.500	-2.622	-2.713	-2.521
$\bar{X}$, lb/h			-2.500	-2.561	-2.612	-2.589

TABLE A-24 (continued) Page 2 of 2

Reading No.	6.	7.	8.			
T, min	373.000	437.000	499.000	532.000		
W, lb	2763.400	2760.100	2762.500	2784.800		
ΔT, h	1.133	1.067	1.033			
ΔW, lb	-2.500	-3.300	2.400			
$\Sigma\Delta T$, h	5.100	6.167	7.200			
$\Sigma\Delta W$, lb	-12.500	-15.800	-13.400			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.206	-3.094	2.323			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.451	-2.562	-1.861			
$\bar{X}$, lb/h	-2.561	-2.561	-2.461			

n 7

Slope -2.149

Intercept -1.543

S_{yx} 1.592

S_x 2.233

S_a 0.291

S_b 0.699

S_c 1.886

$t_{\alpha/2}$ 2.571

r -0.990

Confidence interval

2.149 ± 0.748

TABLE A-25 SUMMARY OF DATA FROM TEST NO. 13

Page 1 of 2

Degreaser A, idle

Solvent: 1,1,1-Trichloroethane
(Boiling x ; nonboiling ___)
FB 50 % PC x SC - A 0 %
Inlet air - Exhaust air x V 0 ft/min
Other
Lid closed

Date 11/16/78
Ambient air
Temperature 68 °F
Pressure - in. Hg
Humidity 38 %

Reading No.		1.	2.	3.	4.	5.
T, min	0.000	15.000	80.000	142.000	202.000	262.000
W, lb	3597.600	3610.800	3607.800	3606.500	3606.000	3606.100
ΔT, h			1.083	1.033	1.000	1.000
ΔW, lb			-3.000	-1.300	-0.500	0.100
ΣΔT, h			1.083	2.117	3.117	4.117
ΣΔW, lb			-3.000	-4.300	-4.800	-4.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			-2.769	-1.258	-0.500	0.100
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h			-2.769	-2.031	-1.540	-1.142
$\bar{X}$, lb/h			-2.769	-2.400	-2.114	-1.871

TABLE A-25 (continued)

Page 2 of 2

Reading No.	6.	7.	8.			
T, min	322.000	387.000	439.000	457.000		
W, lb	3605.600	3605.100	3604.600	3592.200		
ΔT, h	1.000	1.083	0.867			
ΔW, lb	-0.500	-0.500	-0.500			
ΣΔT, h	5.117	6.200	7.067			
ΣΔW, lb	-5.200	-5.700	-6.200			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.500	-0.462	-0.577			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.016	-0.919	-0.877			
$\bar{X}$, lb/h	-1.700	-1.570	-1.471			

n 7

Slope -0.704

Intercept -2.968

S_{yx} 0.334

S_x 2.170

S_a 0.063

S_b 0.743

S_c 0.933

$t_{\alpha/2}$ 2.571

r -0.963

Confidence interval

0.704 ± 0.162

TABLE A-26 SUMMARY OF DATA FROM TEST NO. 13

Page 1 of 2

Degreaser B, idle

Solvent: 1,1,1-Trichloroethane
(Boiling x ; nonboiling ___)
FB 50 % PC x SC - A 0 %
Inlet air - Exhaust air x V 0 ft/min
Other Lid closed

Date 11/16/78
Ambient air
Temperature 68 °F
Pressure - In. Hg
Humidity 38 %

Reading No.		1.	2.	3.	4.	5.
T, min	0.000	17.000	82.000	143.000	200.000	266.000
W, lb	2779.900	2798.600	2794.300	2794.300	2793.100	2793.300
ΔT, h			1.083	1.017	0.950	1.100
ΔW, lb			-4.300	0.000	-1.200	0.200
ΣΔT, h			1.083	2.100	3.050	4.150
ΣΔW, lb			-4.300	-4.300	-5.500	-5.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			-3.969	0.000	-1.263	0.182
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h			-3.969	-2.048	-1.803	-1.277
$\bar{X}$, lb/h			-3.969	-3.008	-2.607	-2.274

TABLE A-26 (continued)

Page 2 of 2

Reading No.	6.	7.				
T, min	323.000	380.000	453.000			
W, lb	2792.400	2792.000	2776.200			
ΔT, h	0.950	0.950				
ΔW, lb	-0.900	-0.400				
$\Sigma\Delta T$, h	5.100	6.050				
$\Sigma\Delta W$, lb	-6.200	-6.600				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.947	-0.421				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.216	-1.091				
$\bar{X}$, lb/h	-2.063	-1.901				

n	6	S_{yx}	0.325	$t_{\alpha/2}$	2.776
Slope	-0.876	S_x	1.868	r	-0.957
Intercept	-3.629	S_a	0.078	Confidence interval	
		S_b	0.905	0.876 ± 0.217	
		S_c	1.523		

TABLE A-27 SUMMARY OF DATA FROM TEST NO. 14

Page 1 of 2

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC x A 50 %
Inlet air - Exhaust air x V 8 ft/min
Other

Date 11/17/78
Ambient air
Temperature 72 °F
Pressure - in. Hg
Humidity 50 %

Reading No.		1.	2.	3.	4.	5.
T, min	654.000	680.000	722.000	780.000	838.000	906.000
W, lb	3605.100	3619.500	3615.700	3612.500	3608.300	3605.000
ΔT, h			0.700	0.967	0.967	1.133
ΔW, lb			-3.800	-3.200	-4.200	-3.300
ΣΔT, h			0.700	1.667	2.633	3.767
ΣΔW, lb			-3.800	-7.000	-11.200	-14.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			-5.429	-3.310	-4.345	-2.912
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h			-5.429	-4.200	-4.253	-3.850
$\bar{X}$, lb/h			-5.429	-4.814	-4.627	-4.433

TABLE A-27 (continued)

Page 2 of 2

Reading No.	6.	7.				
T, min	965.000	1023.000	1083.000			
W, lb	3602.500	3600.300	3582.900			
ΔT, h	0.983	0.967				
ΔW, lb	-2.500	-2.200				
$\Sigma\Delta T$, h	4.750	5.717				
$\Sigma\Delta W$, lb	-17.000	-19.200				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.542	-2.276				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-3.579	-3.359				
$\bar{X}$, lb/h	-4.262	-4.111				

n	6	S_{yx}	0.719	$t_{\alpha/2}$	2.776
Slope	-3.33	S_x	1.896	r	-0.996
Intercept	-2.150	S_a	0.170	Confidence interval	
		S_b	0.738	3.33 ± 0.472	
		S_c	1.202		

TABLE A-28 SUMMARY OF DATA FROM TEST NO. 14

Page 1 of 2

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC x A 50 %
Inlet air - Exhaust air x V 8 ft/min
Other

Date 11/17/78
Ambient air
Temperature 72 °F
Pressure - in. Hg
Humidity 50 %

Reading No.		1.	2.	3.	4.	5.
T, min	654.000	665.000	724.000	775.000	847.000	906.000
W, lb	2780.600	2791.400	2783.900	2781.300	2780.700	2783.600
ΔT, h			0.983	0.850	1.200	0.983
ΔW, lb			-7.500	-2.600	-0.600	2.900
$\Sigma\Delta T$, h			0.983	1.833	3.033	4.017
$\Sigma\Delta W$, lb			-7.500	-10.100	-10.700	-7.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			-7.627	-3.059	-0.500	2.949
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h			-7.627	-5.509	-3.527	-1.942
$\bar{X}$, lb/h			-7.627	-6.568	-5.555	-4.651

TABLE A-28 (continued) Page 2 of 2

Reading No.	6.	7.				
T, min	964.000	1021.000	1083.000			
W, lb	2781.000	2779.100	2764.300			
ΔT, h	0.967	0.950				
ΔW, lb	-2.600	-1.900				
ΣΔT, h	4.983	5.933				
ΣΔW, lb	-10.400	-12.300				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.690	-2.000				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.087	-2.073				
$\bar{X}$, lb/h	-4.139	-3.794				

n	6	S_{yx}	1.597	$t_{\alpha/2}$	2.776
Slope	-1.43	S_x	1.882	r	-0.930
Intercept	-7.686	S_a	0.380	Confidence interval	
		S_b	0.844	1.43 ± 1.055	
		S_c	3.460		

TABLE A-29 SUMMARY OF DATA FROM TEST NO. 15 **Page** 1 **of** 2

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 50 **%** **PC** x **SC** - **A** 50 **%**
Inlet air - **Exhaust air** x **V** 8 **ft/min**
Other Top was closed one-half hour between each load cycle

Date 11/20/78
Ambient air
Temperature 65 **°F**
Pressure - **in. Hg**
Humidity 42 **%**

Reading No.		1.	2.	3.	4.	5.
T, min	3937.000	4003.000	4067.000	4129.000	4196.000	4254.000
W, lb	3650.400	3658.600	3672.400	3670.900	3669.100	3668.000
ΔT, h			1.067	1.033	1.117	0.967
ΔW, lb			13.800	-1.500	-1.800	-1.100
$\Sigma\Delta T$, h			1.067	2.100	3.217	4.183
$\Sigma\Delta W$, lb			13.800	12.300	10.500	9.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			12.937	-1.452	-1.612	-1.138
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h			12.937	5.857	3.264	2.247
$\bar{X}$, lb/h			12.937	9.397	7.353	6.076

TABLE A-29 (continued)

Page 2 of 2

Reading No.	6.	7.	8.			
T, min	4387.000	4464.000	4485.000	4506.000		
W, lb	3667.300	3664.600	3664.100	3654.300		
ΔT, h	2.217	1.283	0.350			
ΔW, lb	-0.700	-2.700	-0.500			
$\Sigma\Delta T$, h	6.400	7.683	8.033			
$\Sigma\Delta W$, lb	8.700	6.000	5.500			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.316	-2.104	-1.429			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	1.359	0.781	0.685			
$\bar{X}$, lb/h	5.133	4.408	3.876			

n 8

Slope -1.092

Intercept 14.554

S_{yx} 0.663

S_x 2.748

S_a 0.099

S_b 0.624

$t_{\alpha/2}$ 2.447

r 0.706

Confidence interval

± 0.242

TABLE A-30 SUMMARY OF DATA FROM TEST NO. 15

Page 1 of 2

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC - A 50 %
Inlet air - Exhaust air x V 8 ft/min
Other
Top was closed one-half hour between each load cycle

Date 11/20/78
Ambient air
Temperature 62 °F
Pressure - in. Hg
Humidity 50 %

Reading No.		1.	2.	3.	4.	5.
T, min	3976.000	4006.000	4070.000	4131.000	4200.000	4261.000
W, lb	2797.800	2818.300	2815.300	2814.200	2812.400	2811.500
ΔT, h			1.067	1.017	1.150	1.017
ΔW, lb			-3.000	-1.100	-1.800	-0.900
$\Sigma\Delta T$, h			1.067	2.083	3.233	4.250
$\Sigma\Delta W$, lb			-3.000	-4.100	-5.900	-6.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			-2.812	-1.082	-1.565	-0.885
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h			-2.812	-1.968	-1.825	-1.600
$\bar{X}$, lb/h			-2.812	-2.390	-2.202	-2.051

TABLE A-30 (continued) Page 2 of 2

Reading No.						
T, min	4386.000	4471.000				
W, lb	2819.500	2795.300				
ΔT, h						
ΔW, lb						
ΣΔT, h						
ΣΔW, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n	5	S_{yx}	0.231	$t_{\alpha/2}$	3.18
Slope	1.237	S_x	1.382	r	0.991
Intercept	1.663	S_a	0.089	**Confidence interval**	
		S_b	1.484	1.237 ± 0.283	
		S_c	0.866		

TABLE A-31 SUMMARY OF DATA FROM TEST NO. 16

Page 1 of 2

Degreaser A, idle

Solvent: 1,1,1-Trichloroethane
(Boiling x ; nonboiling ___)
FB 50 % PC x SC x A 0 %
Inlet air - Exhaust air x V 0 ft/min
Other

Date 11/20/78
Ambient air
Temperature 60 °F
Pressure - in. Hg
Humidity 44 %

Reading No.		1.	2.	3.	4.	5.
T, min	4581.000	4629.000	4688.000	4749.000	4805.000	4863.000
W, lb	3666.600	3661.700	3659.800	3657.800	3656.400	3655.000
ΔT, h			0.983	1.017	0.933	0.967
ΔW, lb			-1.900	-2.000	-1.400	-1.400
$\Sigma\Delta T$, h			0.983	2.000	2.933	3.900
$\Sigma\Delta W$, lb			-1.900	-3.900	-5.300	-6.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			-1.932	-1.967	-1.500	-1.448
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h			-1.932	-1.950	-1.807	-1.718
$\bar{X}$, lb/h			-1.932	-1.941	-1.896	-1.852

TABLE A-31 (continued)

Page 2 of 2

Reading No.	6.	7.	8.			
T, min	4924.000	4985.000	5046.000			
W, lb	3654.400	3653.000	3651.100			
ΔT, h	1.017	1.017	1.017			
ΔW, lb	-0.600	-1.400	-1.900			
$\Sigma\Delta T$, h	4.917	5.933	6.950			
$\Sigma\Delta W$, lb	-7.300	-8.700	-10.600			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.590	-1.377	-1.869			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.485	-1.466	-1.525			
$\bar{X}$, lb/h	-1.778	-1.726	-1.698			

n 7

Slope -1.44

Intercept -0.985

S_{yx} 0.395

S_x 2.141

S_a 0.075

S_b 0.709

S_c 0.480

$t_{\alpha/2}$ 2.571

r -0.997

Confidence interval

1.44 ± 0.193

TABLE A-32 SUMMARY OF DATA FROM TEST NO. 16 Page 1 of 2

Degreaser B, idle

Solvent: 1,1,1-Trichloroethane
(Boiling x ; nonboiling ___)
FB 50 % PC x SC x A 0 %
Inlet air - Exhaust air x V 0 ft/min
Other

Date 11/20/78
Ambient air
Temperature 60 °F
Pressure - in. Hg
Humidity 44 %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	4629.000	4688.000	4749.000	4803.000	4860.000	4923.000
W, lb	2803.400	2800.300	2798.900	2797.700	2797.000	2796.000
ΔT, h		0.983	1.017	0.900	0.950	1.050
ΔW, lb		-3.100	-1.400	-1.200	-0.700	-1.000
ΣΔT, h		0.983	2.000	2.900	3.850	4.900
ΣΔW, lb		-3.100	-4.500	-5.700	-6.400	-7.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-3.153	-1.377	-1.333	-0.737	-0.952
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-3.153	-2.250	-1.966	-1.662	-1.510
$\bar{X}$, lb/h		-3.153	-2.701	-2.456	-2.258	-2.108

TABLE A-32 (continued)

Page 2 of 2

Reading No.	7.	8.				
T, min	4984.000	5045.000				
W, lb	2795.000	2794.200				
ΔT, h	1.017	1.017				
ΔW, lb	-1.000	-0.800				
$\Sigma\Delta T$, h	5.917	6.933				
$\Sigma\Delta W$, lb	-8.400	-9.200				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.984	-0.787				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.420	-1.327				
$\bar{X}$, lb/h	-1.993	-1.898				

n	7	S_{yx}	0.238	$t_{\alpha/2}$	2.571
Slope	-1.21	S_x	2.136	r	-0.986
Intercept	-2.448	S_a	0.045	Confidence interval	
		S_b	0.706	1.21 ± 0.116	
		S_c	0.840		

TABLE A-33 SUMMARY OF DATA FROM TEST NO. 17 Page 1 of 2

Degreaser A, idle

Solvent: 1,1,1-Trichloroethane
(Boiling x ; nonboiling ___)
FB 75 % PC x SC x A 0 %
Inlet air - Exhaust air x V 0 ft/min
Other

Date 11/21/78
Ambient air
Temperature 68 °F
Pressure - in. Hg
Humidity 30 %

Reading No.		1.	2.	3.	4.	5.
T, min	5460.000	5514.000	5571.000	5634.000	5693.000	5753.000
W, lb	3742.500	3736.200	3735.800	3734.100	3733.500	3733.100
ΔT, h			0.950	1.050	0.983	1.000
ΔW, lb			-0.400	-1.700	-0.600	-0.400
ΣΔT, h			0.950	2.000	2.983	3.983
ΣΔW, lb			-0.400	-2.100	-2.700	-3.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			-0.421	-1.619	-0.610	-0.400
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h			-0.421	-1.050	-0.905	-0.778
$\bar{X}$, lb/h			-0.421	-0.736	-0.792	-0.789

TABLE A-33 (continued) Page 2 of 2

Reading No.	6.	7.	8.			
T, min	5814.000	5871.000	5932.000	3950.000		
W, lb	3730.900	3730.100	3728.500	3709.800		
ΔT, h	1.017	0.950	1.017			
ΔW, lb	-2.200	-0.800	-1.600			
ΣΔT, h	5.000	5.950	6.967			
ΣΔW, lb	-5.300	-6.100	-7.700			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.164	-0.842	-1.574			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.060	-1.025	-1.105			
$\bar{X}$, lb/h	-0.843	-0.873	-0.906			

n	7	S_{yx}	0.460	$t_{\alpha/2}$	2.571
Slope	-1.07	S_x	2.158	r	-0.994
Intercept	0.708	S_a	0.087	Confidence interval	
		S_b	0.709	1.07 ± 0.224	
		S_c	0.693		

Page 1 of 2

TABLE A-34 SUMMARY OF DATA FROM TEST NO. 17

Degreaser B, idle

Solvent: 1,1,1-Trichloroethane
(Boiling x ; nonboiling ___)
FB 75 % PC x SC x A 0 %
Inlet air - Exhaust air x V 0 ft/min
Other

Date 11/21/78
Ambient air
Temperature 68 °F
Pressure - in. Hg
Humidity 30 %

Reading No.		1.	2.	3.	4.	5.
T, min	5451.000	5512.000	5573.000	5633.000	5691.000	5755.000
W, lb	2865.000	2856.900	2855.800	2855.200	2854.300	2853.800
ΔT, h			1.017	1.000	0.967	1.067
ΔM, lb			-1.100	-0.600	-0.900	-0.500
ΣΔT, h			1.017	2.017	2.983	4.050
ΣΔM, lb			-1.100	-1.700	-2.600	-3.100
$\left(\frac{\Delta M}{\Delta T}\right)$, lb/h			-1.082	-0.600	-0.931	-0.469
$\left(\frac{\Sigma\Delta M}{\Sigma\Delta T}\right)$, lb/h			-1.082	-0.843	-0.872	-0.765
$\bar{X}$, lb/h			-1.082	-0.962	-0.932	-0.890

TABLE A-34 (continued) Page 2 of 2

Reading No.	6.	7.	8.			
T, min	5813.000	5870.000	5931.000	5954.000		
W, lb	2853.200	2852.600	2852.300	2842.500		
ΔT, h	0.967	0.950	1.017			
ΔW, lb	-0.600	-0.600	-0.300			
ΣΔT, h	5.017	5.967	6.983			
ΣΔW, lb	-3.700	-4.300	-4.600			
$\left(\frac{\Delta W}{\Delta T}\right)_i$, lb/h	-0.621	-0.632	-0.295			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)_i$, lb/h	-0.738	-0.721	-0.659			
$\bar{X}$, lb/h	-0.860	-0.837	-0.811			

n 7

Slope -0.660

Intercept 0.597

S_{yx} 0.162

S_x 2.148

S_a 0.031

S_b 0.722

S_c 0.267

$t_{\alpha/2}$ 2.571

r -0.996

Confidence interval

0.660 ± 0.080

TABLE A-35 SUMMARY OF DATA FROM TEST NO. 18 **Page** 1 **of** 2

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 75 % PC x SC x A 50 %
Inlet air - Exhaust air x V 8 ft/min
Other

Date 11/21/78
Ambient air
Temperature - °F
Pressure - in. Hg
Humidity - %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	6109.000	6168.000	6232.000	6292.000	6350.000	6415.000
W, lb	3722.200	3721.300	3717.400	3716.000	3713.800	3711.500
ΔT, h		0.983	1.067	1.000	0.967	1.083
ΔW, lb		-0.900	-3.900	-1.400	-2.200	-2.300
$\Sigma \Delta T$, h		0.983	2.050	3.050	4.017	5.100
$\Sigma \Delta W$, lb		-0.900	-4.800	-6.200	-8.400	-10.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.915	-3.656	-1.400	-2.276	-2.123
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h		-0.915	-2.341	-2.033	-2.091	-2.098
$\bar{X}$, lb/h		-0.915	-1.628	-1.763	-1.845	-1.896

TABLE A-35 (continued) **Page** 2 **of** 2

Reading No.	7.	8.				
T, min	6467.000	6526.000				
W, lb	3710.400	3707.300				
ΔT, h	0.867	0.983				
ΔW, lb	-1.100	-3.100				
ΣΔT, h	5.967	6.950				
ΣΔW, lb	-11.800	-14.900				
$\left(\frac{\Delta W}{\Delta T}\right)$, **lb/h**	-1.269	-3.153				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, **lb/h**	-1.978	-2.144				
$\bar{X}$, **lb/h**	-1.909	-1.943				

n	7	S_{yx}	0.606	$t_{\alpha/2}$	2.571
Slope	-2.140	S_x	2.144	**r**	-0.998
Intercept	0.515	S_a	0.115	**Confidence interval**	
		S_b	0.728	2.140 ± 0.296	
		S_c	1.012		

TABLE A-36 SUMMARY OF DATA FROM TEST NO. 18

Page 1 of 2

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 75 %
PC x
SC x
A 50 %
Inlet air -
Exhaust air x
V 8 ft/min
Other

Date 11/21/78
Ambient air
Temperature - °F
Pressure - in. Hg
Humidity - %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	6109.000	6172.000	6231.000	6296.000	6348.000	6413.000
W, lb	2855.000	2846.700	2846.700	2844.300	2842.800	2841.800
ΔT, h		1.050	0.983	1.083	0.867	1.083
ΔW, lb		-8.300	0.000	-2.400	-1.500	-1.000
$\Sigma\Delta T$, h		1.050	2.033	3.117	3.983	5.067
$\Sigma\Delta W$, lb		-8.300	-8.300	-10.700	-12.200	-13.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-7.905	0.000	-2.215	-1.731	-0.923
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-7.905	-4.082	-3.433	-3.063	-2.605
$\bar{X}$, lb/h		-7.905	-5.993	-5.140	-4.621	-4.218

TABLE A-36 (continued) Page 2 of 2

Reading No.	7.	8.				
T, min	6458.000	6523.000				
W, lb	2839.900	2838.500				
ΔT, h	0.750	1.083				
ΔW, lb	-1.900	-1.400				
$\Sigma\Delta T$, h	5.817	6.900				
$\Sigma\Delta W$, lb	-15.100	-16.500				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.533	-1.292				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.596	-2.391				
$\bar{X}$, lb/h	-3.947	-3.725				

n	7	S_{yx}	0.538	$t_{\alpha/2}$	2.571
Slope	-1.800	S_x	2.090	**r**	-0.976
Intercept	-6.050	S_a	0.105	**Confidence interval**	
		S_b	0.752	1.800 ± 0.270	
		S_c	2.581		

TABLE A-37 SUMMARY OF DATA FROM TEST NO. 19

Page 1 of 2

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC x A 50 %
Inlet air - Exhaust air x V 8 ft/min
Other

Date 11/22/78
Ambient air
Temperature 60 °F
Pressure ___ in. Hg
Humidity 49 %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	7331.000	7383.000	7448.000	7506.000	7566.000	7630.000
W, lb	3607.100	3605.100	3602.400	3601.200	3598.600	3595.300
ΔT, h		0.867	1.083	0.967	1.000	1.067
ΔW, lb		-2.000	-2.700	-1.200	-2.600	-3.300
ΣΔT, h		0.867	1.950	2.917	3.917	4.983
ΣΔW, lb		-2.000	-4.700	-5.900	-8.500	-11.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-2.308	-2.492	-1.241	-2.600	-3.094
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h		-2.308	-2.410	-2.023	-2.170	-2.368
$\bar{X}$, lb/h		-2.308	-2.359	-2.247	-2.228	-2.256

TABLE A-37 (continued) **Page** 2 **of** 2

Reading No.	7.					
T, min	7689.000					
W, lb	3592.500					
ΔT, h	0.983					
ΔW, lb	-2.800					
$\Sigma\Delta T$, h	5.967					
$\Sigma\Delta W$, lb	-14.600					
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.847					
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.447					
$\bar{X}$, lb/h	-2.288					

n	6	S_{yx}	0.606	$t_{\alpha/2}$	2.776
Slope	-2.43	S_x	1.903	**r**	-0.998
Intercept	0.469	S_a	0.142	**Confidence interval**	
		S_b	0.818	2.43 ± 0.394	
		S_c	0.644		

TABLE A-38 SUMMARY OF DATA FROM TEST NO. 19 Page 1 of 2

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

Date 11/22/78

Ambient air

Temperature 60 °F

Pressure - in. Hg

Humidity 49 %

FB 50 % PC x SC x A 50 %

Inlet air - Exhaust air x V 8 ft/min

Other

Reading No.	1.	2.	3.	4.	5.	6.
T, min	7326.000	7385.000	7444.000	7507.000	7567.000	7625.000
W, lb	2772.800	2770.300	2767.900	2765.500	2763.800	2761.900
ΔT, h		0.983	0.983	1.050	1.000	0.967
ΔW, lb		-2.500	-2.400	-2.400	-1.700	-1.900
$\Sigma\Delta T$, h		0.983	1.967	3.017	4.017	4.983
$\Sigma\Delta W$, lb		-2.500	-4.900	-7.300	-9.000	-10.900
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-2.542	-2.441	-2.286	-1.700	-1.966
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-2.542	-2.492	-2.420	-2.241	-2.187
$\bar{X}$, lb/h		-2.542	-2.517	-2.485	-2.424	-2.376

TABLE A-38 (continued) Page 2 of 2

Reading No.	7.					
T, min	7684.000					
W, lb	2758.200					
ΔT, h	0.983					
ΔW, lb	-3.700					
ΣΔT, h	5.967					
ΣΔW, lb	-14.600					
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.763					
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.447					
$\bar{X}$, lb/h	-2.388					

n 6

Slope -2.31

Intercept -0.202

S_{yx} 0.567

S_x 1.869

S_a 0.136

S_b 0.863

S_c 0.715

$t_{\alpha/2}$ 2.571

r -0.999

Confidence interval

2.31 ± 0.350

TABLE A-39 SUMMARY OF DATA FROM TEST NO. 20

Page 1 of 2

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC ____ A 70 %
Inlet air ____ Exhaust air x V 8 ft/min
Other

Date 11/26/78
Ambient air
Temperature 53 °F
Pressure NA in. Hg
Humidity 88 %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	8108.000	8160.000	8225.000	8283.000	8341.000	8399.000
W, lb	3629.400	3626.600	3626.200	3621.200	3618.500	3615.900
ΔT, h		0.867	1.083	0.967	0.967	0.967
ΔW, lb		2.800	0.400	5.000	2.700	2.600
ΣΔT, h		0.867	1.950	2.917	3.883	4.850
ΣΔW, lb		2.800	3.200	8.200	10.900	13.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		3.231	0.369	5.172	2.793	2.690
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h		3.231	1.641	2.811	2.807	2.784
$\bar{X}$, lb/h		3.231	2.436	2.561	2.623	2.655

TABLE A-39 (continued) Page 2 of 2

Reading No.	7.					
T, min	8464.000					
W, lb	3613.500					
ΔT, h	1.083					
ΔW, lb	2.400					
ΣΔT, h	5.933					
ΣΔW, lb	15.900					
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	2.215					
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	2.680					
$\bar{X}$, lb/h	2.659					

n	6	S_{yx}	1.074	$t_{\alpha/2}$	2.78
Slope	2.823	S_x	1.871	**r**	0.996
Intercept	-0.515	S_a	0.257	**Confidence interval**	
		S_b	0.827	2.823 ± 0.714	
		S_c	1.553		

TABLE A-40 SUMMARY OF DATA FROM TEST NO. 20

Page 1 of 2

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC ____ A 70 %
Inlet air ____ Exhaust air x V 8 ft/min
Other

Date 11/26/78
Ambient air
Temperature 53 °F
Pressure NA in. Hg
Humidity 88 %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	8163.000	8221.000	8280.000	8345.000	8404.000	8469.000
W, lb	2803.300	2800.800	2798.100	2796.600	2793.700	2791.100
ΔT, h		0.967	0.983	1.083	0.983	1.083
ΔW, lb		2.500	2.700	1.500	2.900	2.600
$\Sigma\Delta T$, h		0.967	1.950	3.033	4.017	5.100
$\Sigma\Delta W$, lb		2.500	5.200	6.700	9.600	12.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		2.586	2.746	1.385	2.949	2.400
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		2.586	2.667	2.209	2.390	2.392
$\bar{X}$, lb/h		2.586	2.626	2.487	2.463	2.449

TABLE A-40 (continued) Page 2 of 2

Reading No.						
T, min						
W, lb						
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n	5	S_{yx}	0.423	$t_{\alpha/2}$	3.18
Slope	2.301	S_x	1.634	r	0.999
Intercept	0.306	S_a	0.130	Confidence interval	
		S_b	1.050	2.301 ± 0.413	
		S_c	0.609		

TABLE A-41 SUMMARY OF DATA FROM TEST NO. 22

Page 1 of 2

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 75 % PC x SC ____ A 50 %
Inlet air ____ Exhaust air x V 8 ft/min
Other

Date 12/21/78
Ambient air
Temperature 54 °F
Pressure - in. Hg
Humidity 39 %

Reading No.				1.	2.	3.
T, min	38581.000	38641.000	38683.000	39012.000	39074.000	39140.000
W, lb	3506.500	3505.100	3496.900	3495.700	3480.000	3478.200
ΔT, h					1.033	1.100
ΔW, lb					-15.700	-1.800
ΣΔT, h					1.033	2.133
ΣΔW, lb					-15.700	-17.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-15.194	-1.636
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-15.194	-8.203
$\bar{X}$, lb/h					-15.194	-11.698

TABLE A-41 (continued) Page 2 of 2

Reading No.	4.	5.	6.	7.		
T, min	39193.000	39249.000	39310.000	39362.000		
W, lb	3478.000	3475.200	3473.600	3474.000		
ΔT, h	0.883	0.933	1.017	0.867		
ΔW, lb	-0.200	-2.800	-1.600	0.400		
$\Sigma\Delta T$, h	3.017	3.950	4.967	5.833		
$\Sigma\Delta W$, lb	-17.700	-20.500	-22.100	-21.700		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.226	-3.000	-1.574	0.462		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-5.867	-5.190	-4.450	-3.720		
$\bar{X}$, lb/h	-9.755	-8.613	-7.781	-7.104		

n 6

Slope -1.399

Intercept -14.321

S_{yx} 0.787

S_x 1.788

S_a 0.197

S_b 0.928

S_c 5.841

$t_{\alpha/2}$ 2.776

r -0.949

Confidence interval

1.399 ± 0.547

TABLE A-42 SUMMARY OF DATA FROM TEST NO. 22 Page 1 of 3

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 75 % PC x SC ____ A 50 %
Inlet air ____ Exhaust air x V 8 ft/min
Other

Date 12/21/78
Ambient air
Temperature 54 °F
Pressure - in. Hg
Humidity 39 %

Reading No.				1.	2.	3.
T, min	38578.000	38611.000	38618.000	38651.000	38715.000	38775.000
W, lb	2861.300	2861.500	2839.900	2845.600	2846.700	2842.300
ΔT, h					1.067	1.000
ΔW, lb					1.100	-4.400
ΣΔT, h					1.067	2.067
ΣΔW, lb					1.100	-3.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					1.031	-4.400
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					1.031	-1.597
$\bar{X}$, lb/h					1.031	-0.283

TABLE A-42 (continued) **Page 2 of 3**

Reading No.	4.	5.	6.	7.	8.	9.
T, min	38839.000	38898.000	38956.000	39015.000	39074.000	39138.000
W, lb	2839.900	2839.100	2837.200	2833.750	2833.500	2831.000
ΔT, h	1.067	0.983	0.967	0.983	0.983	1.067
ΔW, lb	-2.400	-0.800	-1.900	-3.450	-0.250	-2.500
ΣΔT, h	3.133	4.117	5.083	6.067	7.050	8.117
ΣΔW, lb	-5.700	-6.500	-8.400	-11.850	-12.100	-14.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.250	-0.814	-1.966	-3.508	-0.254	-2.344
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.819	-1.579	-1.652	-1.953	-1.716	-1.799
$\bar{X}$, lb/h	-0.795	-0.991	-1.123	-1.262	-1.327	-1.386

(continued)

TABLE A-42 (continued)

Page 3 of 3

Reading No.	10.	11.	12.	13.		
T, min	39191.000	39249.000	39317.000	39360.000		
W, lb	2829.600	2828.350	2826.300	2826.200		
ΔT, h	0.883	0.967	1.133	0.717		
ΔW, lb	-1.400	-1.250	-2.050	-0.100		
$\Sigma\Delta T$, h	9.000	9.967	11.100	11.817		
$\Sigma\Delta W$, lb	-16.000	-17.250	-19.300	-19.400		
$\left(\frac{\Delta W}{\Delta T}\right)_i$, lb/h	-1.585	-1.293	-1.809	-0.140		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)_i$, lb/h	-1.778	-1.731	-1.739	-1.642		
$\bar{X}$, lb/h	-1.429	-1.459	-1.485	-1.498		

n	12	S_{yx}	1.033	$t_{\alpha/2}$	1.812
Slope	-1.836	S_x	3.554	**r**	-0.997
Intercept	0.914	S_a	0.088	**Confidence interval**	
		S_b	0.392	1.836 ± 0.159	
		S_c	1.484		

TABLE A-43 SUMMARY OF DATA FROM TEST NO. 23

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 100 % PC x SC - A 50 %
Inlet air - Exhaust air x V 8 ft/min
Other

Date 12/22/78
Ambient air
Temperature 50 °F
Pressure - in. Hg
Humidity 45 %

Reading No.		1.	2.	3.	4.	5.
T, min	40002.000	40064.000	40124.000	40182.000	40254.000	40298.000
W, lb	3548.800	3527.400	3531.500	3529.600	3528.400	3527.500
ΔT, h			1.000	0.967	1.200	0.733
ΔW, lb			4.100	-1.900	-1.200	-0.900
ΣΔT, h			1.000	1.967	3.167	3.900
ΣΔW, lb			4.100	2.200	1.000	0.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			4.100	-1.966	-1.000	-1.227
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h			4.100	1.119	0.316	0.026
$\bar{X}$, lb/h			4.100	2.609	1.845	1.390

TABLE A-43 (continued) Page 2 of 3

Reading No.	6.	7.	8.	9.	10.	11.
T, min	40368.000	40414.000	40478.000	40552.000	40598.000	40660.000
W, lb	3525.800	3523.900	3524.700	3523.000	3522.000	3520.000
ΔT, h	1.167	0.767	1.067	1.233	0.767	1.033
ΔW, lb	-1.700	-1.900	0.800	-1.700	-1.000	-2.000
ΣΔT, h	5.067	5.833	6.900	8.133	8.900	9.933
ΣΔW, lb	-1.600	-3.500	-2.700	-4.400	-5.400	-7.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.457	-2.478	0.750	-1.378	-1.304	-1.935
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-0.316	-0.600	-0.391	-0.541	-0.607	-0.745
$\bar{X}$, lb/h	1.049	0.774	0.608	0.464	0.345	0.236

(continued)

TABLE A-43 (continued) Page 3 of 3

Reading No.	12.					
T, min	40717.000					
W, lb	3518.400					
ΔT, h	0.950					
ΔW, lb	-1.600					
$\Sigma \Delta T$, h	10.883					
$\Sigma \Delta W$, lb	-9.000					
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.684					
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-0.827					
$\bar{X}$, lb/h	0.139					

n	11	S_{yx}	0.649	$t_{\alpha/2}$	2.262
Slope	-1.222	S_x	3.282	r	-0.858
Intercept	4.881	S_a	0.063	Confidence interval	
		S_b	0.422	1.222 ± 0.143	
		S_c	1.840		

TABLE A-44 SUMMARY OF DATA FROM TEST NO. 23

Page 1 of 2

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 100 % PC x SC ____ A 50 %
Inlet air ____ Exhaust air x V 8 ft/min
Other

Date 12/22/78
Ambient air
Temperature - °F
Pressure - in. Hg
Humidity - %

Reading No.		1.	2.	3.	4.	5.
T, min	40030.000	40088.000	40135.000	40245.000	40296.000	40356.000
W, lb	2927.100	2912.200	2907.000	2906.500	2906.000	2904.500
ΔT, h			0.783	1.833	0.850	1.000
ΔW, lb			-5.200	-0.500	-0.500	-1.500
ΣΔT, h			0.783	2.617	3.467	4.467
ΣΔW, lb			-5.200	-5.700	-6.200	-7.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			-6.638	-0.273	-0.588	-1.500
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h			-6.638	-2.178	-1.788	-1.724
$\bar{X}$, lb/h			-6.638	-4.408	-3.535	-3.082

TABLE A-44 (continued) Page 2 of 2

Reading No.	6.	7.	8.	9.	10.	11.
T, min	40414.000	40478.000	40543.000	40598.000	40654.000	40718.000
W, lb	2905.000	2903.200	2901.500	2902.750	2897.900	2896.900
ΔT, h	0.967	1.067	1.083	0.917	0.933	1.067
ΔW, lb	0.500	-1.800	-1.700	1.250	-4.850	-1.000
$\Sigma\Delta T$, h	5.433	6.500	7.583	8.500	9.433	10.500
$\Sigma\Delta W$, lb	-7.200	-9.000	-10.700	-9.450	-14.300	-15.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	0.517	-1.687	-1.569	1.364	-5.196	-0.937
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.325	-1.385	-1.411	-1.112	-1.516	-1.457
$\bar{X}$, lb/h	-2.721	-2.506	-2.350	-2.195	-2.120	-2.053

n	10	S_{yx}	1.349	$t_{\alpha/2}$	2.306
Slope	-1.031	S_x	3.140	**r**	-0.983
Intercept	-2.962	S_a	0.143	**Confidence interval**	
		S_b	0.496	1.031 ± 0.330	
		S_c	2.468		

Page 1 of 5

TABLE A-45 SUMMARY OF DATA FROM TEST NO. 25

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC x A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 1/15/79
Ambient air
Temperature 61 °F
Pressure - in. Hg
Humidity 28 %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	76746.000	76811.000	76875.000	76936.000	77007.000	77075.000
W, lb	3392.500	3388.600	3387.900	3384.000	3380.500	3380.500
ΔT, h		1.083	1.067	1.017	1.183	1.133
ΔW, lb		-3.900	-0.700	-3.900	-3.500	0.000
ΣΔT, h		1.083	2.150	3.167	4.350	5.483
ΣΔW, lb		-3.900	-4.600	-8.500	-12.000	-12.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-3.600	-0.656	-3.836	-2.958	0.000
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h		-3.600	-2.140	-2.684	-2.759	-2.188
$\bar{X}$, lb/h		-3.600	-2.870	-2.808	-2.796	-2.674

TABLE A-45 (continued)

Page 2 of 5

Reading No.	7.	8.	9.	10.	11.	12.
T, min	77136.000	77202.000	77259.000	77325.000	77383.000	77442.000
W, lb	3377.500	3377.000	3375.000	3372.500	3370.500	3368.250
ΔT, h	1.017	1.100	0.950	1.100	0.967	0.983
ΔW, lb	-3.000	-0.500	-2.000	-2.500	-2.000	-2.250
ΣΔT, h	6.500	7.600	8.550	9.650	10.617	11.600
ΣΔW, lb	-15.000	-15.500	-17.500	-20.000	-22.000	-24.250
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.951	-0.455	-2.105	-2.273	-2.069	-2.288
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-2.308	-2.039	-2.047	-2.073	-2.072	-2.091
$\bar{X}$, lb/h	-2.613	-2.531	-2.471	-2.426	-2.391	-2.364

(continued)

TABLE A-45 (continued) Page 3 of 5

Reading No.	13.	14.	15.	16.	17.	18.
T, min	77507.000	77572.000	77621.000	77689.000	77747.000	77804.000
W, lb	3366.900	3365.500	3364.000	3362.000	3359.500	3358.500
ΔT, h	1.083	1.083	0.817	1.133	0.967	0.950
ΔW, lb	-1.350	-1.400	-1.500	-2.000	-2.500	-1.000
$\Sigma\Delta T$, h	12.683	13.767	14.583	15.717	16.683	17.633
$\Sigma\Delta W$, lb	-25.600	-27.000	-28.500	-30.500	-33.000	-34.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.246	-1.292	-1.837	-1.765	-2.586	-1.053
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.018	-1.961	-1.954	-1.941	-1.978	-1.928
$\bar{X}$, lb/h	-2.335	-2.306	-2.281	-2.258	-2.241	-2.222

(continued)

TABLE A-45 (continued)

Page 4 of 5

Reading No.	19.	20.	21.	22.	23.	24.
T, min	77872.000	77920.000	77982.000	78049.000	78118.000	78177.000
W, lb	3356.500	3354.500	3353.600	3351.200	3349.000	3347.800
ΔT, h	1.133	0.800	1.033	1.117	1.150	0.983
ΔW, lb	-2.000	-2.000	-0.900	-2.400	-2.200	-1.200
$\Sigma\Delta T$, h	18.767	19.567	20.600	21.717	22.867	23.850
$\Sigma\Delta W$, lb	-36.000	-38.000	-38.900	-41.300	-43.500	-44.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.765	-2.500	-0.871	-2.149	-1.913	-1.220
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.918	-1.942	-1.888	-1.902	-1.902	-1.874
$\bar{X}$, lb/h	-2.206	-2.192	-2.176	-2.163	-2.152	-2.139

(continued)

TABLE A-45 (continued)

Reading No.	25.	26.	27.			
T, min	78244.000	78275.000	78296.000			
W, lb	3345.400	3344.000	3345.900			
ΔT, h	1.117	0.517	0.350			
ΔW, lb	-2.400	-1.400	1.900			
ΣΔT, h	24.967	25.483	25.833			
ΣΔW, lb	-47.100	-48.500	-46.600		⋮	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.149	-2.710	5.429			
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-1.887	-1.903	-1.804			
$\bar{X}$, lb/h	-2.129	-2.120	-2.108			

n 26

Slope -1.775

Intercept -2.683

S_{yx} 0.782

S_x 7.755

S_a 0.020

S_b 0.170

S_c 1.711

$t_{\alpha/2}$ 2.064

r -0.999

Confidence interval

1.775 ± 0.041

TABLE A-46 SUMMARY OF DATA FROM TEST NO. 25

Page 1 of 5

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC x A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 1/15/79
Ambient air
Temperature 61 °F
Pressure - in. Hg
Humidity 28 %

Reading No.			1.	2.	3.	4.
T, min	75329.000	75341.000	75414.000	75493.000	75565.000	75631.000
W, lb	2742.500	2741.500	2740.000	2739.500	2736.400	2734.000
ΔT, h				1.317	1.200	1.100
ΔW, lb				-0.500	-3.100	-2.400
ΣΔT, h				1.317	2.517	3.617
ΣΔW, lb				-0.500	-3.600	-6.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h				-0.380	-2.583	-2.182
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h				-0.380	-1.430	-1.659
$\bar{X}$, lb/h				-0.380	-0.905	-1.156

TABLE A-46 (continued) Page 2 of 5

Reading No.	5.	6.	7.	8.	9.	10.
T, min	75694.000	75760.000	75819.000	75884.000	75949.000	76014.000
W, lb	2732.000	2730.500	2727.500	2724.500	2720.500	2719.000
ΔT, h	1.050	1.100	0.983	1.083	1.083	1.083
ΔW, lb	-2.000	-1.500	-3.000	-3.000	-4.000	-1.500
$\Sigma\Delta T$, h	4.667	5.767	6.750	7.833	8.917	10.000
$\Sigma\Delta W$, lb	-8.000	-9.500	-12.500	-15.500	-19.500	-21.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.905	-1.364	-3.051	-2.769	-3.692	-1.385
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.714	-1.647	-1.852	-1.979	-2.187	-2.100
$\bar{X}$, lb/h	-1.296	-1.366	-1.447	-1.523	-1.606	-1.661

(continued)

TABLE A-46 (continued) Page 3 of 5

Reading No.	11.	12.	13.	14.	15.	16.
T, min	76079.000	76138.000	76189.000	76255.000	76312.000	76378.000
W, lb	2718.250	2716.000	2714.800	2712.500	2710.000	2709.500
ΔT, h	1.083	0.983	0.850	1.100	0.950	1.100
ΔW, lb	-0.750	-2.250	-1.200	-2.300	-2.500	-0.500
ΣΔT, h	11.083	12.067	12.917	14.017	14.967	16.067
ΣΔW, lb	-21.750	-24.000	-25.200	-27.500	-30.000	-30.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.692	-2.288	-1.412	-2.091	-2.632	-0.455
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.962	-1.989	-1.951	-1.962	-2.004	-1.898
$\bar{X}$, lb/h	-1.691	-1.718	-1.738	-1.755	-1.773	-1.781

(continued)

TABLE A-46 (continued) Page 4 of 5

Reading No.	17.	18.	19.	20.	21.	22.
T, min	76429.000	76472.000	76550.000	76637.000	76714.000	76780.000
W, lb	2708.000	2706.500	2705.600	2704.600	2699.200	2695.900
ΔT, h	0.850	0.717	1.300	1.450	1.283	1.100
ΔW, lb	-1.500	-1.500	-0.900	-1.000	-5.400	-3.300
ΣΔT, h	16.917	17.633	18.933	20.383	21.667	22.767
ΣΔW, lb	-32.000	-33.500	-34.400	-35.400	-40.800	-44.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.765	-2.093	-0.692	-0.690	-4.208	-3.000
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.892	-1.900	-1.817	-1.737	-1.883	-1.937
$\bar{X}$, lb/h	-1.788	-1.795	-1.796	-1.793	-1.797	-1.804

(continued)

TABLE A-46 (continued) Page 5 of 5

Reading No.	23.	24.	25.	26.		
T, min	76845.000	76906.000	76974.000	76987.000		
W, lb	2693.800	2692.000	2688.800	2690.500		
ΔT, h	1.083	1.017	1.133	0.217		
ΔW, lb	-2.100	-1.800	-3.200	1.700		
$\Sigma\Delta T$, h	23.850	24.867	26.000	26.217		
$\Sigma\Delta W$, lb	-46.200	-48.000	-51.200	-49.500		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.938	-1.770	-2.824	7.846		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.937	-1.930	-1.969	-1.888		
$\bar{X}$, lb/h	-1.810	-1.815	-1.822	-1.824		

n	25	S_{yx}	1.358	$t_{\alpha/2}$	2.069
Slope	-1.936	S_x	7.738	**r**	-1.000
Intercept	0.435	S_a	0.036	**Confidence interval**	
		S_b	0.178		1.936 ± .074
				S_c	2.202

TABLE A-47 SUMMARY OF DATA FROM TEST NO. 26

Page 1 of 5

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC x A 70 %
Inlet air x Exhaust air x V 8 ft/min
Other Extensive problems with Degreaser A

Date 1/18/79
Ambient air
Temperature - °F
Pressure - in. Hg
Humidity - %

Reading No.				1.	2.	3.
T, min	78426.000	78449.000	78459.000	78493.000	78536.000	78609.000
W, lb	2859.000	2858.000	2854.000	2853.000	2853.000	2851.250
ΔT, h					0.717	1.217
ΔW, lb					0.000	-1.750
ΣΔT, h					0.717	1.933
ΣΔW, lb					0.000	-1.750
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					0.000	-1.438
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					0.000	-0.905
$\bar{X}$, lb/h					0.000	-0.453

TABLE A-47 (continued) Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	78669.000	78731.000	78792.000	78849.000	78916.000	78972.000
W, lb	2850.000	2847.000	2845.500	2841.500	2839.250	2834.900
ΔT, h	1.000	1.033	1.017	0.950	1.117	0.933
ΔW, lb	-1.250	-3.000	-1.500	-4.000	-2.250	-4.350
$\Sigma\Delta T$, h	2.933	3.967	4.983	5.933	7.050	7.983
$\Sigma\Delta W$, lb	-3.000	-6.000	-7.500	-11.500	-13.750	-18.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.250	-2.903	-1.475	-4.211	-2.015	-4.661
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.023	-1.513	-1.505	-1.938	-1.950	-2.267
$\bar{X}$, lb/h	-0.643	-0.860	-0.989	-1.147	-1.267	-1.388

(continued)

TABLE A-47 (continued) Page 3 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	79028.000	79089.000	79155.000	79213.000	79279.000	79330.000
W, lb	2834.700	2832.500	2830.200	2827.500	2826.000	2826.000
ΔT, h	0.933	1.017	1.100	0.967	1.100	0.850
ΔW, lb	-0.200	-2.200	-2.300	-2.700	-1.500	0.000
ΣΔT, h	8.917	9.933	11.033	12.000	13.100	13.950
ΣΔW, lb	-18.300	-20.500	-22.800	-25.500	-27.000	-27.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.214	-2.164	-2.091	-2.793	-1.364	0.000
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.052	-2.064	-2.066	-2.125	-2.061	-1.935
$\bar{X}$, lb/h	-1.462	-1.522	-1.571	-1.617	-1.652	-1.672

(continued)

TABLE A-47 (continued)

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Reading No.	16.	17.	18.	19.	20.	21.
T, min	79391.000	79446.000	79508.000	79572.000	79633.000	79699.000
W, lb	2822.750	2821.400	2820.200	2819.200	2816.400	2815.500
ΔT, h	1.017	0.917	1.033	1.067	1.017	1.100
ΔW, lb	-3.250	-1.350	-1.200	-1.000	-2.800	-0.900
$\Sigma\Delta T$, h	14.967	15.883	16.917	17.983	19.000	20.100
$\Sigma\Delta W$, lb	-30.250	-31.600	-32.800	-33.800	-36.600	-37.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.197	-1.473	-1.161	-0.937	-2.754	-0.818
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.021	-1.990	-1.939	-1.880	-1.926	-1.866
$\bar{X}$, lb/h	-1.695	-1.714	-1.727	-1.735	-1.745	-1.751

(continued)

TABLE A-47 (continued) Page 5 of 5

Reading No.	22.	23.	24.	25.		
T, min	79759.000	79830.000	79890.000	79947.000	79981.000	
W, lb	2814.600	2813.000	2810.500	2809.500	2808.750	
ΔT, h	1.000	1.183	1.000	0.950		
ΔW, lb	-0.900	-1.600	-2.500	-1.000		
ΣΔT, h	21.100	22.283	23.283	24.233		
ΣΔW, lb	-38.400	-40.000	-42.500	-43.500		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.900	-1.352	-2.500	-1.053		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.820	-1.795	-1.825	-1.795		
$\bar{X}$, lb/h	-1.755	-1.756	-1.759	-1.761		

n 24

Slope -1.886

Intercept -0.148

S_{yx} 1.799

S_x 7.161

S_a 0.052

S_b 0.174

S_c 1.204

$t_{\alpha/2}$ 2.074

r -1.000

Confidence interval

1.886 ± 0.108

TABLE A-48 SUMMARY OF DATA FROM TEST NO. 28

Page 1 of 5

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 125 % PC x SC x A 70 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 1/20/79
Ambient air
Temperature 70 °F
Pressure - in. Hg
Humidity 45 %

Reading No.				1.	2.	3.
T, min	81345.000	81379.000	81390.000	81422.000	81492.000	81549.000
W, lb	3696.850	3692.500	3692.500	3691.000	3687.600	3686.500
ΔT, h					1.167	0.950
ΔW, lb					-3.400	-1.100
ΣΔT, h					1.167	2.117
ΣΔW, lb					-3.400	-4.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-2.914	-1.158
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-2.914	-2.126
$\bar{X}$, lb/h					-2.914	-2.520

Page 2 of 5

TABLE A-48 (continued)

Reading No.	4.	5.	6.	7.	8.	9.
T, min	81607.000	81673.000	81738.000	81797.000	81857.000	81920.000
W, lb	3685.000	3682.000	3680.500	3678.500	3677.500	3675.750
ΔT, h	0.967	1.100	1.083	0.983	1.000	1.050
ΔW, lb	-1.500	-3.000	-1.500	-2.000	-1.000	-1.750
ΣΔT, h	3.083	4.183	5.267	6.250	7.250	8.300
ΣΔW, lb	-6.000	-9.000	-10.500	-12.500	-13.500	-15.250
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.552	-2.727	-1.385	-2.034	-1.000	-1.667
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-1.946	-2.151	-1.994	-2.000	-1.862	-1.837
$\bar{X}$, lb/h	-2.329	-2.284	-2.226	-2.189	-2.142	-2.104

(continued)

TABLE A-48 (continued) Page 3 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	81972.000	82038.000	82091.000	82151.000	82220.000	82274.000
W, lb	3675.250	3673.250	3670.500	3670.000	3667.000	3662.500
ΔT, h	0.867	1.100	0.883	1.000	1.150	0.900
ΔW, lb	-0.500	-2.000	-2.750	-0.500	-3.000	-4.500
$\Sigma\Delta T$, h	9.167	10.267	11.150	12.150	13.300	14.200
$\Sigma\Delta W$, lb	-15.750	-17.750	-20.500	-21.000	-24.000	-28.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.577	-1.818	-3.113	-0.500	-2.609	-5.000
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.718	-1.729	-1.839	-1.728	-1.805	-2.007
$\bar{X}$, lb/h	-2.061	-2.028	-2.011	-1.987	-1.973	-1.975

(continued)

TABLE A-48 (continued)

Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	82346.000	82430.000	82457.000	82521.000	82594.000	82638.000
W, lb	3651.700	3661.200	3660.700	3658.700	3657.000	3656.200
ΔT, h	1.200	1.400	0.450	1.067	1.217	0.733
ΔW, lb	-10.800	9.500	-0.500	-2.000	-1.700	-0.800
ΣΔT, h	15.400	16.800	17.250	18.317	19.533	20.267
ΣΔW, lb	-39.300	-29.800	-30.300	-32.300	-34.000	-34.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-9.000	6.786	-1.111	-1.875	-1.397	-1.091
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-2.552	-1.774	-1.757	-1.763	-1.741	-1.717
$\bar{X}$, lb/h	-2.014	-1.999	-1.985	-1.972	-1.960	-1.948

(continued)

TABLE A-48 (continued)

Page 5 of 5

Reading No.	22.	23.	24.	25.		
T, min	82699.000	82756.000	82820.000	82874.000	82912.000	82935.000
W, lb	3655.100	3654.100	3651.100	3649.600	3649.000	3650.500
ΔT, h	1.017	0.950	1.067	0.900		
ΔW, lb	-1.100	-1.000	-3.000	-1.500		
ΣΔT, h	21.283	22.233	23.300	24.200		
ΣΔW, lb	-35.900	-36.900	-39.900	-41.400		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.082	-1.053	-2.812	-1.667		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.687	-1.660	-1.712	-1.711		
$\bar{X}$, lb/h	-1.936	-1.923	-1.914	-1.905		

n 24

Slope -1.676

Intercept -1.805

S_{yx} 2.720

S_x 7.129

S_a 0.080

S_b 0.181

S_c 2.537

$t_{\alpha/2}$ 2.074

r -1.000

Confidence interval

1.676 ± .166

TABLE A-49 SUMMARY OF DATA FROM TEST NO. 28

Page 1 of 5

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 125 % PC x SC x A 70 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 1/20/79
Ambient air
Temperature 70 °F
Pressure - in. Hg
Humidity 45 %

Reading No.				1.	2.	3.
T, min	81352.000	81377.000	81387.000	81422.000	81492.000	81543.000
W, lb	3040.750	3039.000	3039.400	3039.000	3036.000	3033.700
ΔT, h					1.167	0.850
ΔW, lb					-3.000	-2.300
ΣΔT, h					1.167	2.017
ΣΔW, lb					-3.000	-5.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-2.571	-2.706
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-2.571	-2.628
$\bar{X}$, lb/h					-2.571	-2.600

TABLE A-49 (continued)

Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	81602.000	81673.000	81732.000	81797.000	81859.000	81915.000
W, lb	3032.500	3030.250	3028.500	3026.750	3026.000	3025.000
ΔT, h	0.983	1.183	0.983	1.083	1.033	0.933
ΔW, lb	-1.200	-2.250	-1.750	-1.750	-0.750	-1.000
ΣΔT, h	3.000	4.183	5.167	6.250	7.283	8.217
ΣΔW, lb	-6.500	-8.750	-10.500	-12.250	-13.000	-14.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.220	-1.901	-1.780	-1.615	-0.726	-1.071
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-2.167	-2.092	-2.032	-1.960	-1.785	-1.704
X, lb/h	-2.455	-2.364	-2.298	-2.242	-2.176	-2.117

(continued)

TABLE A-49 (continued)

Page 3 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	81975.000	82044.000	82091.000	82162.000	82272.000	82343.000
W, lb	3024.500	3023.500	3022.500	3020.000	3016.000	3015.500
ΔT, h	1.000	1.150	0.783	1.183	1.833	1.183
ΔW, lb	-0.500	-1.000	-1.000	-2.500	-4.000	-0.500
$\Sigma\Delta T$, h	9.217	10.367	11.150	12.333	14.167	15.350
$\Sigma\Delta W$, lb	-14.500	-15.500	-16.500	-19.000	-23.000	-23.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.500	-0.870	-1.277	-2.113	-2.182	-0.423
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.573	-1.495	-1.480	-1.541	-1.624	-1.531
$\bar{X}$, lb/h	-2.057	-2.001	-1.953	-1.919	-1.896	-1.870

(continued)

TABLE A-49 (continued)

Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	82421.000	82462.000	82525.000	82597.000	82640.000	82699.000
W, lb	3012.200	3011.100	3009.700	3007.900	3007.900	3005.800
ΔT, h	1.300	0.683	1.050	1.200	0.717	0.983
ΔW, lb	-3.300	-1.100	-1.400	-1.800	0.000	-2.100
ΣΔT, h	16.650	17.333	18.383	19.583	20.300	21.283
ΣΔW, lb	-26.800	-27.900	-29.300	-31.100	-31.100	-33.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.538	-1.610	-1.333	-1.500	0.000	-2.136
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.610	-1.610	-1.594	-1.588	-1.532	-1.560
$\bar{X}$, lb/h	-1.853	-1.838	-1.823	-1.810	-1.796	-1.784

(continued)

TABLE A-49 (continued) Page 5 of 5

Reading No.	22.	23.	24.			
T, min	82756.000	82822.000	82877.000	82910.000	82943.000	
W, lb	3005.000	3002.900	3001.500	3000.100	3001.500	
ΔT, h	0.950	1.100	0.917			
ΔW, lb	-0.800	-2.100	-1.400			
$\Sigma\Delta T$, h	22.233	23.333	24.250			
$\Sigma\Delta W$, lb	-34.000	-36.100	-37.500			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.842	-1.909	-1.527			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.529	-1.547	-1.546			
$\bar{X}$, lb/h	-1.772	-1.761	-1.752			

n 23

Slope -1.455

Intercept -1.982

S_{yx} 0.801

S_x 7.312

S_a 0.023

S_b 0.182

S_c 0.722

$t_{\alpha/2}$ 2.080

r -1.000

Confidence interval

1.455 ± .048

TABLE A-50 SUMMARY OF DATA FROM TEST NO. 29 Page 1 of 6

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 125 % PC x SC x A 70 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 1/21/79
Ambient air
Temperature 69 °F
Pressure NA in. Hg
Humidity 25 %

Reading No.					1.	2.
T, min	85004.000	85018.000	85039.000	85055.000	85085.000	85148.000
W lb	3635.900	3635.900	3650.400	3646.000	3645.000	3642.800
ΔT, h						1.050
ΔW, lb						2.200
$\Sigma\Delta T$, h						1.050
$\Sigma\Delta W$, lb						2.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						2.095
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						2.095
$\bar{X}$, lb/h						2.095
						2.095

TABLE A-50 (continued)

Reading No.	3.	4.	5.	6.	7.	8.
T, min	85198.000	85259.000	85333.000	85396.000	85459.000	85518.000
W, lb	3640.600	3637.000	3630.200	3633.000	3630.800	3627.800
ΔT, h	0.833	1.017	1.233	1.050	1.050	0.983
ΔW, lb	2.200	3.600	6.800	-2.800	2.200	3.000
ΣΔT, h	1.883	2.900	4.133	5.183	6.233	7.217
ΣΔW, lb	4.400	8.000	14.800	12.000	14.200	17.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	2.640	3.541	5.514	-2.667	2.095	3.051
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	2.336	2.759	3.581	2.315	2.278	2.333
$\bar{X}$, lb/h	2.216	2.397	2.693	2.617	2.561	2.535

(continued)

TABLE A-50 (continued)

Page 3 of 6

Reading No.	9.	10.	11.	12.	13.	14.
T, min	85588.000	85642.000	85701.000	85817.000	85761.000	85877.000
W, lb	3625.000	3622.750	3620.500	3616.000	3617.250	3612.000
ΔT, h	1.167	0.900	0.983	1.933	-0.933	1.933
ΔW, lb	2.800	2.250	2.250	4.500	-1.250	5.250
ΣΔT, h	8.383	9.283	10.267	12.200	11.267	13.200
ΣΔW, lb	20.000	22.250	24.500	29.000	27.750	33.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	2.400	2.500	2.288	2.328	1.339	2.716
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	2.386	2.397	2.386	2.377	2.500	2.463
$\bar{X}$, lb/h	2.517	2.503	2.492	2.400	2.481	2.400

(continued)

TABLE A-50 (continued)

Page 4 of 6

Reading No.	15.	16.	17.	18.	19.	20.
T, min	85941.000	85999.000	86064.000	86117.000	86175.000	86245.000
W, lb	3610.750	3607.750	3605.300	3603.000	3600.500	3597.750
ΔT, h	1.067	0.967	1.083	0.883	0.967	1.167
ΔW, lb	1.250	3.000	2.450	2.300	2.500	2.750
ΣΔT, h	14.267	15.233	16.317	17.200	18.167	19.333
ΣΔW, lb	34.250	37.250	39.700	42.000	44.500	47.250
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	1.172	3.103	2.262	2.604	2.586	2.357
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	2.215	2.274	2.274	2.293	2.309	2.312
$\bar{X}$, lb/h	2.401	2.445	2.433	2.442	2.450	2.444
	2.475	2.473	2.471	2.469	2.468	2.467

(continued)

TABLE A-50 (continued)

Reading No.	21.	22.	23.	24.	25.	
T, min	86298.000	86357.000	86412.000	86470.000	86531.000	86570.000
W, lb	3596.050	3594.000	3592.500	3589.950	3588.200	3587.900
ΔT, h	0.883	0.983	0.917	0.967	1.017	
ΔW, lb	1.700	2.050	1.500	2.550	1.750	
ΣΔT, h	20.217	21.200	22.117	23.083	24.100	
ΣΔW, lb	48.950	51.000	52.500	55.050	56.800	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	1.925	2.085	1.636	2.638	1.721	
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	2.421	2.406	2.374	2.385	2.357	
$\bar{X}$, lb/h	2.465	2.462	2.458	2.455	2.451	

(continued)

TABLE A-50 (continued) Page 6 of 6

Reading No.						
T, min	86593.000					
W, lb	3589.700					
ΔT, h						
ΔW, lb						
$\Sigma \Delta T$, h						
$\Sigma \Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n 24

Slope 2.369

Intercept 0.728

S_{yx} 1.147

S_x 7.104

S_a 0.034

S_b 0.108

S_c 1.344

$t_{\alpha/2}$ 2.07

r 0.999

Confidence interval

2.369 ± 0.071

TABLE A-51 SUMMARY OF DATA FROM TEST NO. 29

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 125 % PC x SC x A 70 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 1/21/79
Ambient air
Temperature 69 °F
Pressure NA in. Hg
Humidity 25 %

Reading No.					1.	2.
T, min	85004.000	85018.000	[illegible]	85051.000	85081.000	85148.000
W, lb	2972.250	2972.250	2973.350	2985.450	2983.750	2981.850
ΔT, h						1.117
ΔW, lb						1.900
$\Sigma\Delta T$, h						1.117
$\Sigma\Delta W$, lb						1.900
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						1.701
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						1.701
$\bar{X}$, lb/h						1.701

TABLE A-51 (continued) Page 2 of 6

Reading No.	3.	4.	5.	6.	7.	8.
T, min	85201.000	85264.000	85334.000	85396.000	85459.000	85517.000
W, lb	2980.000	2977.000	2974.500	2971.000	2970.500	2968.500
ΔT, h	0.883	1.050	1.167	1.033	1.050	0.967
ΔW, lb	1.850	3.000	2.500	3.500	0.500	2.000
$\Sigma\Delta T$, h	2.000	3.050	4.217	5.250	6.300	7.267
$\Sigma\Delta W$, lb	3.750	6.750	9.250	12.750	13.250	15.250
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	2.094	2.857	2.143	3.387	0.476	2.069
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	1.898	2.213	2.194	2.429	2.103	2.099
$\bar{X}$, lb/h	1.875	1.930	1.496	2.082	2.086	2.088

(continued)

TABLE A-51 (continued)

Page 3 of 6

Reading No.	9.	10.	11.	12.	13.	14.
T, min	85586.000	85642.000	85701.000	85817.000	85761.000	85877.000
W, lb	2966.750	2963.750	2962.000	2956.750	2958.700	2954.500
ΔT, h	1.150	0.933	0.983	1.933	-0.933	1.933
ΔW, lb	1.750	3.000	1.750	5.250	-1.950	4.200
ΣΔT, h	8.417	9.350	10.333	12.267	11.333	13.267
ΣΔW, lb	17.000	20.000	21.750	27.000	25.050	29.250
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	1.522	3.214	1.780	2.716	2.089	2.172
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	2.020	2.139	2.105	2.201	2.210	2.205
$\bar{X}$, lb/h	2.079	2.086	2.088	2.098	2.107	2.115

(continued)

TABLE A-51 (continued) Page 4 of 6

Reading No.	15.	16.	17.	18.	19.	20.
T, min	85941.000	85992.000	86064.000	86117.000	86175.000	86239.000
W, lb	2953.000	2950.850	2948.200	2946.500	2944.500	2942.700
ΔT, h	1.067	0.850	1.200	0.883	0.967	1.067
ΔW, lb	1.500	2.150	2.650	1.700	2.000	1.800
ΣΔT, h	14.333	15.183	16.383	17.267	18.233	19.300
ΣΔW, lb	30.750	32.900	35.550	37.250	39.250	41.050
$\left(\frac{\Delta W}{\Delta T}\right)$, **lb/h**	1.406	2.529	2.208	1.925	2.069	1.688
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, **lb/h**	2.145	2.167	2.170	2.157	2.153	2.127
$\bar{X}$, **lb/h**	2.117	2.120	2.123	2.125	2.127	2.127

(continued)

TABLE A-51. (continued) Page 5 of 6

Reading No.	21.	22.	23.	24.	25.	
T, min	86298.000	86357.000	86412.000	86470.000	86533.000	86568.000
W, lb	2939.600	2938.600	2936.800	2935.350	2932.900	2931.200
ΔT, h	0.983	0.983	0.917	0.967	1.050	
ΔW, lb	3.100	1.000	1.800	1.450	2.450	
ΣΔT, h	20.283	21.267	22.183	23.150	24.200	
ΣΔW, lb	44.150	45.150	46.950	48.400	50.850	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	3.153	1.017	1.964	1.500	2.333	
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	2.177	2.123	2.116	2.091	2.101	
$\bar{X}$, lb/h	2.129	2.129	2.129	2.127	2.126	

(continued)

TABLE A-51 (continued)

Page 6 of 6

Reading No.						
T, min	86674.000					
W, lb	2933.200					
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n	24	S_{yx}	0.650	$t_{\alpha/2}$	2.07
Slope	2.122	S_x	7.348	r	1.000
Intercept	0.241	S_a	0.018	Confidence interval	
		S_b	0.175	2.122 ± 0.037	
		S_c	0.687		

TABLE A-52 SUMMARY OF DATA FROM TEST NO. 30

Page 1 of 5

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 125 %
PC x
SC x
A 50 %
Inlet air x
Exhaust air x
V 8 ft/min
Other

Date 1/26/79
Ambient air
Temperature 70 °F
Pressure - in. Hg
Humidity 38 %

Reading No.				1.	2.	3.
T, min	90796.	90808.	90818.	90819.000	90915.000	90988.000
W, lb	3681.95	3681.3	3677.5	3678.200	3676.800	3674.800
ΔT, h					1.600	1.217
ΔW, lb					-1.400	-2.000
$\Sigma\Delta T$, h					1.600	2.817
$\Sigma\Delta W$, lb					-1.400	-3.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-0.875	-1.644
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-0.875	-1.207
$\bar{X}$, lb/h					-0.875	-1.041

TABLE A-52 (continued) **Page 2 of 5**

Reading No.	4.	5.	6.	7.	8.	9.
T, min	91056.000	91116.000	91169.000	91228.000	91281.000	91354.000
W, lb	3673.600	3671.800	3670.600	3669.300	3667.200	3666.000
ΔT, h	1.133	1.000	0.883	0.983	0.883	1.217
ΔW, lb	-1.200	-1.800	-1.200	-1.300	-2.100	-1.200
$\Sigma\Delta T$, h	3.950	4.950	5.833	6.817	7.700	8.917
$\Sigma\Delta W$, lb	-4.600	-6.400	-7.600	-8.900	-11.000	-12.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.059	-1.800	-1.358	-1.322	-2.377	-0.986
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.165	-1.293	-1.303	-1.306	-1.429	-1.368
$\bar{X}$, lb/h	-1.082	-1.135	-1.168	-1.191	-1.225	-1.243

(continued)

TABLE A-52 (continued)

Page 3 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	91412.000	91478.000	91542.000	91593.000	91653.000	91717.000
W, lb	3664.000	3662.000	3660.500	3659.750	3657.750	3656.500
ΔT, h	0.967	1.100	1.067	0.850	1.000	1.067
ΔW, lb	-2.000	-2.000	-1.500	-0.750	-2.000	-1.250
ΣΔT, h	9.883	10.983	12.050	12.900	13.900	14.967
ΣΔW, lb	-14.200	-16.200	-17.700	-18.450	-20.450	-21.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.069	-1.818	-1.406	-0.882	-2.000	-1.172
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.437	-1.475	-1.469	-1.430	-1.471	-1.450
$\bar{X}$, lb/h	-1.265	-1.286	-1.302	-1.313	-1.325	-1.334

(continued)

TABLE A-52 (continued) Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	91770.000	91843.000	91894.000	91958.000	92029.000	92088.000
W, lb	3655.000	3653.400	3652.300	3650.400	3649.000	3647.200
ΔT, h	0.883	1.217	0.850	1.067	1.183	0.983
ΔW, lb	-1.500	-1.600	-1.100	-1.900	-1.400	-1.800
ΣΔT, h	15.850	17.067	17.917	18.983	20.167	21.150
ΣΔW, lb	-23.200	-24.800	-25.900	-27.800	-29.200	-31.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.698	-1.315	-1.294	-1.781	-1.183	-1.831
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-1.464	-1.453	-1.446	-1.464	-1.448	-1.466
$\bar{X}$, lb/h	-1.343	-1.350	-1.355	-1.361	-1.366	-1.371

(continued)

TABLE A-52 (continued) Page 5 of 5

Reading No.	22.	23.	24.	25.	26.	
T, min	92204.000	92264.000	92324.000	92335.000	92343.000	92434.000
W, lb	3643.750	3642.000	3641.000	3642.500	3643.000	3644.000
ΔT, h	1.933	1.000	1.000	0.183	0.133	
ΔW, lb	-3.450	-1.750	-1.000	1.500	0.500	
ΣΔT, h	23.083	24.083	25.083	25.267	25.400	
ΣΔW, lb	-34.450	-36.200	-37.200	-35.700	-35.200	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.784	-1.750	-1.000	8.182	3.750	
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.492	-1.503	-1.483	-1.413	-1.386	
$\bar{X}$, lb/h	-1.377	-1.382	-1.387	-1.388	-1.388	

n	25	S_{yx}	0.634	$t_{\alpha/2}$	2.069
Slope	-1.495	S_x	7.593	r	-1.000
Intercept	0.809	S_a	0.017	Confidence interval	
		S_b	0.183	1.495 ± 0.070	
		S_c	2.199		

TABLE A-53 SUMMARY OF DATA FROM TEST NO. 30

Page 1 of 5

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 125 % PC x SC x A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 1/20/79
Ambient air
Temperature 70 °F
Pressure - in. Hg
Humidity 38 %

Reading No.				1.	2.	3.
T, min	90796.	90810.	90820.	90850.000	90915.000	90988.000
W, lb	3089.6	3090.5	3084.75	3089.200	3087.400	3085.000
ΔT, h					1.083	1.217
ΔW, lb					-1.800	-2.400
$\Sigma\Delta T$, h					1.083	2.300
$\Sigma\Delta W$, lb					-1.800	-4.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.662	-1.973
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.662	-1.826
$\bar{X}$, lb/h					-1.662	-1.744

TABLE A-53 (continued) Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	91056.000	91116.000	91169.000	91228.000	91281.000	91354.000
W, lb	3085.200	3083.900	3082.800	3081.200	3080.600	3079.500
ΔT, h	1.133	1.000	0.883	0.983	0.883	1.217
ΔW, lb	0.200	-1.300	-1.100	-1.600	-0.600	-1.100
ΣΔT, h	3.433	4.433	5.317	6.300	7.183	8.400
ΣΔW, lb	-4.000	-5.300	-6.400	-8.000	-8.600	-9.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	0.176	-1.300	-1.245	-1.627	-0.679	-0.904
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.165	-1.195	-1.204	-1.270	-1.197	-1.155
$\bar{X}$, lb/h	-1.551	-1.462	-1.410	-1.387	-1.360	-1.334

(continued)

TABLE A-53 (continued) Page 3 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	91412.000	91478.000	91542.000	91593.000	91653.000	91717.000
W, lb	3078.250	3077.000	3075.750	3075.000	3073.500	3071.750
ΔT, h	0.967	1.100	1.067	0.850	1.000	1.067
ΔW, lb	-1.250	-1.250	-1.250	-0.750	-1.500	-1.750
ΣΔT, h	9.367	10.467	11.533	12.383	13.383	14.450
ΣΔW, lb	-10.950	-12.200	-13.450	-14.200	-15.700	-17.450
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.293	-1.136	-1.172	-0.882	-1.500	-1.641
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.169	-1.166	-1.166	-1.147	-1.173	-1.208
$\bar{X}$, lb/h	-1.316	-1.301	-1.289	-1.277	-1.269	-1.264

(continued)

TABLE A-53 (continued) Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	91770.000	91841.000	91894.000	91958.000	92029.000	92088.000
W, lb	3071.250	3069.900	3067.700	3065.900	3064.200	3064.700
ΔT, h	0.883	1.183	0.883	1.067	1.183	0.983
ΔW, lb	-0.500	-1.350	-2.200	-1.800	-1.700	0.500
$\Sigma\Delta T$, h	15.333	16.517	17.400	18.467	19.650	20.633
$\Sigma\Delta W$, lb	-17.950	-19.300	-21.500	-23.300	-25.000	-24.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.566	-1.141	-2.491	-1.687	-1.437	0.508
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.171	-1.169	-1.236	-1.262	-1.272	-1.187
$\bar{X}$, lb/h	-1.258	-1.253	-1.252	-1.252	-1.253	-1.250

(continued)

TABLE A-53 (continued) Page 5 of 5

Reading No.	22.	23.	24.	25.	26.	27.
T, min	92146.000	92200.000	92264.000	92324.000	92335.000	92434.000
W, lb	3064.400	3061.000	3061.350	3060.250	3060.750	3060.000
ΔT, h	0.967	0.900	1.067	1.000	0.183	1.650
ΔW, lb	-0.300	-3.400	0.350	-1.100	0.500	-0.750
ΣΔT, h	21.600	22.500	23.567	24.567	24.750	26.400
ΣΔW, lb	-24.800	-28.200	-27.850	-28.950	-28.450	-29.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.310	-3.778	0.328	-1.100	2.727	-0.455
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.148	-1.253	-1.182	-1.178	-1.149	-1.106
$\bar{X}$, lb/h	-1.245	-1.245	-1.243	-1.240	-1.236	-1.231

n 26

Slope -1.160

Intercept -0.449

S_{yx} 0.819

S_x 7.695

S_a 0.021

S_b 0.169

S_c 1.162

$t_{\alpha/2}$ 2.064

r -1.000

Confidence interval

1.160 ± 0.043

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TABLE A-54 SUMMARY OF DATA FROM TEST NO. 31

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 125 % **PC** x **SC** ____ **A** 50 %
Inlet air x **Exhaust air** x **V** 8 ft/min
Other Hot load was used throughout the test

Date 1/25/79
Ambient air
Temperature 63 °F
Pressure - in. Hg
Humidity 29 %

Reading No.			.	1.	2.	3.
T, min	89071.	89140.	89154.	89180.000	89238.000	89304.000
W, lb	3722.2	3715.95		3715.750	3713.250	3710.500
ΔT, h					0.967	1.100
ΔW, lb					-2.500	-2.750
ΣΔT, h					0.967	2.067
ΣΔW, lb					-2.500	-5.250
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-2.586	-2.500
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-2.586	-2.540
$\bar{X}$, lb/h					-2.586	-2.563

TABLE A-54 (continued) Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	89356.000	89421.000	89473.000	89544.000	89605.000	89682.000
W, lb	3708.300	3706.800	3704.200	3702.000	3699.600	3696.200
ΔT, h	0.867	1.083	0.867	1.183	1.017	1.283
ΔW, lb	-2.200	-1.500	-2.600	-2.200	-2.400	-3.400
ΣΔT, h	2.933	4.017	4.883	6.067	7.083	8.367
ΣΔW, lb	-7.450	-8.950	-11.550	-13.750	-16.150	-19.550
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.538	-1.385	-3.000	-1.859	-2.361	-2.649
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.540	-2.228	-2.365	-2.266	-2.280	-2.337
$\bar{X}$, lb/h	-2.555	-2.474	-2.452	-2.421	-2.401	-2.393

(continued)

TABLE A-54 (continued) Page 3 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	89739.000	89789.000	89850.000	89922.000	89981.000	90039.000
W, lb	3694.200	3692.000	3690.000	3687.250	3685.250	3683.000
ΔT, h	0.950	0.833	1.017	1.200	0.983	0.967
ΔW, lb	-2.000	-2.200	-2.000	-2.750	-2.000	-2.250
ΣΔT, h	9.317	10.150	11.167	12.367	13.350	14.317
ΣΔW, lb	-21.550	-23.750	-25.750	-28.500	-30.500	-32.750
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.105	-2.640	-1.967	292	-2.034	-2.328
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.313	-2.340	-2.306	2.305	-2.285	-2.288
$\bar{X}$, lb/h	-2.384	-2.360	-2.37	-2.367	-2.361	-2.356

(continued)

TABLE A-54 (continued) Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	90092.000	90163.000	90215.000	9028 .000	90339.000	90393.000
W, lb	3681.500	3678.250	3677.000	3674.250	3672.500	3669.250
ΔT, h	0.883	1.183	0.867	1.083	0.983	0.900
ΔW, lb	-1.500	-3.250	-1.250	-2.750	-1.750	-3.250
ΣΔT, h	15.200	16.383	17.250	18.333	19.317	20.217
ΣΔW, lb	-34.250	-37.500	-38.750	-41.500	-43.250	-46.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.698	-2.746	-1.442	2.538	-1.780	-3.611
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-2.253	-2.289	-2.246	-2.264	-2.239	-2.300
$\bar{X}$, lb/h	-2.349	-2.345	-2.339	-2.335	-2.330	-2.328

(continued)

TABLE A-54 (continued)

Reading No.	22.	23.	24.	25.		
T, min	90457.000	905[illegible].000	90578.000	906[illegible].000		
W, lb	3667.250	3665.000	3662.100	3660.750		
ΔT, h	1.067	1.050	0.967	0.767		
ΔW, lb	-2.000	-2.250	-2.900	-1.350		
$\Sigma\Delta T$, h	21.283	22.333	23.300	24.067		
$\Sigma\Delta W$, lb	-48.500	-50.750	-5[illegible].650	-55.000		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.875	-2.143	-3.000	1.761		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.279	2 272	303	.285		
$\bar{X}$, lb/h	-2.326	-2.3[illegible]4		-2.321		

n 24

Slope -2.259

Intercept -0.379

S_{yx} 0.367

S_x 7.166

S_a 0.011

S_b 0.178

S_c 0.531

$t_{\alpha/2}$ 2.074

r -1.000

Confidence interval

2.259 ± 0.023

TABLE A-55 SUMMARY OF DATA FROM TEST NO. 31

Page 1 of 4

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 125 % PC x SC ____ A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other Hot load was used throughout the test

Date 1/25/79
Ambient air
Temperature 63 °F
Pressure ____ in. Hg
Humidity 29 %

Reading No.				1.	2.	3.
T, min	89491.000	89506.000	89512.000	89543.000	89603.000	89682.000
W, lb	2957.200	2959.600	2958.000	2973.200	2969.400	2968.200
ΔT, h					1.000	1.317
ΔW, lb					-3.800	-1.200
ΣΔT, h					1.000	2.317
ΣΔW, lb					-3.800	-5.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-3.800	-0.911
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h					-3.800	-2.158
$\bar{X}$, lb/h					3.800	-2.979

TABLE A-55 (continued) Page 2 of 4

Reading No.	4.	5.	6.	7.	8.	9.
T, min	89738.000	89789.000	89850.000	89922.000	89981.000	90032.000
W, lb	2965.600	2963.800	2961.800	2960.500	2958.250	2957.750
ΔT, h	0.933	0.850	1.017	1.200	0.983	0.850
ΔW, lb	-2.600	-1.800	-2.000	-1.300	-2.250	-0.500
ΣΔT, h	3.250	4.100	5.117	6.317	7.300	8.150
ΣΔW, lb	-7.600	-9.400	-11.400	-12.700	-14.950	-15.450
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.786	-2.110	-1.967	-1.083	-2.288	-0.588
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.338	-2.290	-2.228	-2.011	-2.048	-1.896
$\bar{X}$, lb/h	-2.766	-2.647	-2.563	-2.471	-2.411	-2.346

(continued)

TABLE A-55 (continued) Page 3 of 4

Reading No.	10.	11.	12.	13.	14.	15.
T, min	90092.000	90163.000	90215.000	90280.000	90339.000	90393.000
W, lb	2956.100	2954.250	2953.000	2951.250	2949.750	2948.800
ΔT, h	1.000	1.183	0.867	1.083	0.983	0.900
ΔW, lb	-1.650	-1.850	-1.250	-1.750	-1.500	-0.950
ΣΔT, h	9.150	10.333	11.200	12.283	13.267	14.167
ΣΔW, lb	-17.100	-18.950	-20.200	-21.950	-23.450	-24.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.650	-1.563	-1.442	-1.615	-1.525	-1.056
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-1.869	-1.834	-1.804	-1.787	-1.768	-1.722
$\bar{X}$, lb/h	-2.293	-2.247	-2.207	-2.172	-2.141	-2.111

(continued)

TABLE A-55 (continued) Page 4 of 4

Reading No.	16.	17.				
T, min	90457.000	90520.000				
W, lb	2947.750	2945.800	29	294		
ΔT, h	1.067	1.050				
ΔW, lb	-1.050	-1.950				
ΣΔT, h	15.233	16.283				
ΣΔW, lb	-25.450	-27.400				
$\left(\frac{\Delta W}{\Delta T}\right)_{*}$, lb/h	-0.984	-1.857				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)_{*}$, lb/h	-1.671	1.683				
$\bar{X}$, lb/h	-2.082	2.057				

n 16

Slope -1.543

Intercept -2.751

S_{yx} 0.586

S_x 4.793

S_a 0.032

S_b 0.283

S_c 0.796

$t_{\alpha/2}$ 2.145

r -1.000

Confidence interval

1.543 ± 0.069

TABLE A-56 SUMMARY OF DATA FROM TEST NO. 32 Page 1 of 7

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 125 % PC x SC x A 50 %
Inlet air x Exhaust air x V 16 ft/min
Other

Date 1/28/79
Ambient air
Temperature 69 °F
Pressure - in. Hg
Humidity 32 %

Reading No.				1.	2.	3.
T, min	94079.000	94088.000	94099.000	94133.000	94175.000	94193.000
W, lb	3708.500	3708.000	3703.800	3702.600	3700.400	3697.800
ΔT, h					0.700	0.300
ΔW, lb					-2.200	-2.600
ΣΔT, h					0.700	1.000
ΣΔW, lb					-2.200	-4.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-3.143	-8.667
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-3.143	-4.800
$\bar{X}$, lb/h					-3.143	-3.971

TABLE A-56 (continued) Page 2 of 7

Reading No.	4.	5.	6.	7.	8.	9.
T, min	94232.000	94257.000	94298.000	94312.000	94346.000	94379.000
W, lb	3698.900	3698.000	3696.500	3696.100	3695.600	3694.200
ΔT, h	0.650	0.417	0.683	0.233	0.567	0.550
ΔW, lb	1.100	-0.900	-1.500	-0.400	-0.500	-1.400
ΣΔT, h	1.650	2.067	2.750	2.983	3.550	4.100
ΣΔW, lb	-3.700	-4.600	-6.100	-6.500	-7.000	-8.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	1.692	-2.160	-2.195	-1.714	-0.882	-2.545
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.242	-2.226	-2.218	-2.179	-1.972	-2.049
$\bar{X}$, lb/h	-3.395	-3.103	-2.926	-2.801	-2.683	-2.604

(continued)

TABLE A-56 (continued) Page 3 of 7

Reading No.	10.	11.	12.	13.	14.	15.
T, min	94413.000	94445.000	94480.000	94500.000	94534.000	94554.000
W, lb	3693.200	3692.000	3690.800	3690.000	3689.200	3688.400
ΔT, h	0.567	0.533	0.583	0.333	0.567	0.333
ΔW, lb	-1.000	-1.200	-1.200	-0.800	-0.800	-0.800
$\Sigma\Delta T$, h	4.667	5.200	5.783	6.117	6.683	7.017
$\Sigma\Delta W$, lb	-9.400	-10.600	-11.800	-12.600	-13.400	-14.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.765	-2.250	-2.057	-2.400	-1.412	-2.400
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.014	-2.038	-2.040	-2.060	-2.005	-2.024
$\bar{X}$, lb/h	-2.538	-2.488	-2.447	-2.415	-2.384	-2.358

(continued)

TABLE A-56 (continued) Page 4 of 7

Reading No.	16.	17.	18.	19.	20.	21.
T, min	94588.000	94604.000	94633.000	94672.000	94694.000	94747.000
W, lb	3688.000	3686.600	3685.700	3684.700	3684.100	3682.400
ΔT, h	0.567	0.267	0.483	0.650	0.367	0.883
ΔW, lb	-0.400	-1.400	-0.900	-1.000	-0.600	-1.700
$\Sigma\Delta T$, h	7.583	7.850	8.333	8.983	9.350	10.233
$\Sigma\Delta W$, lb	-14.600	-16.000	-16.900	-17.900	-18.500	-20.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.706	-5.250	-1.862	-1.538	-1.636	-1.925
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.925	-2.038	-2.028	-1.993	-1.979	-1.974
$\bar{X}$, lb/h	-2.329	-2.311	-2.294	-2.277	-2.262	-2.247

(continued)

TABLE A-56 (continued) Page 5 of 7

Reading No.	22.	23.	24.	25.	26.	27.
T, min	94772.000	94799.000	94840.000	94880.000	94912.000	94939.000
W, lb	3681.600	3681.200	3679.700	3678.500	3677.250	3676.250
ΔT, h	0.417	0.450	0.683	0.667	0.533	0.450
ΔW, lb	-0.800	-0.400	-1.500	-1.200	-1.250	-1.000
ΣΔT, h	10.650	11.100	11.783	12.450	12.983	13.433
ΣΔW, lb	-21.000	-21.400	-22.900	-24.100	-25.350	-26.350
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.920	-0.889	-2.195	-1.800	-2.344	-2.222
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.972	-1.928	-1.943	-1.936	-1.953	-1.962
$\bar{X}$, lb/h	-2.234	-2.220	-2.208	-2.197	-2.187	-2.178

(continued)

TABLE A-56 (continued) Page 6 of 7

Reading No.	28.	29.	30.	31.	32.	33.
T, min	94979.000	94997.000	95042.000	95068.000	95107.000	95140.000
W, lb	3675.500	3674.500	3673.250	3673.000	3670.750	3669.950
ΔT, h	0.667	0.300	0.750	0.433	0.650	0.550
ΔW, lb	-0.750	-1.000	-1.250	-0.250	-2.250	-0.800
ΣΔT, h	14.100	14.400	15.150	15.583	16.233	16.783
ΣΔW, lb	-27.100	-28.100	-29.350	-29.600	-31.850	-32.650
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.125	-3.333	-1.667	-0.577	-3.462	-1.455
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.922	-1.951	-1.937	-1.899	-1.962	-1.945
$\bar{X}$, lb/h	-2.169	-2.161	-2.153	-2.145	-2.139	-2.133

(continued)

TABLE A-56 (continued) **Page 7 of 7**

Reading No.	34.	35.	36.	37.		
T, min	95179.000	95208.000	95233.000	95265.000	95288.000	95301.000
W, lb	3668.750	3668.500	3667.800	3667.400	3666.750	3670.500
ΔT, h	0.650	0.483	0.417	0.533		
ΔW, lb	-1.200	-0.250	-0.700	-0.400		
$\Sigma\Delta T$, h	17.433	17.917	18.333	18.867		
$\Sigma\Delta W$, lb	-33.850	-34.100	-34.800	-35.200		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.846	-0.517	-1.680	-0.750		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.942	-1.903	-1.898	-1.866		
$\bar{X}$, lb/h	-2.127	-2.121	-2.114	-2.107		

n	36	S_{yx}	0.466	$t_{\alpha/2}$	2.032
Slope	-1.854	S_x	5.520	**r**	-1.000
Intercept	-1.099	S_a	0.014	**Confidence interval**	
		S_b	0.113	1.854 ± 0.028	
		S_c	1.576		

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TABLE A-57 SUMMARY OF DATA FROM TEST NO. 32

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 125 % PC x SC x A 50 %
Inlet air x Exhaust air x V 16 ft/min
Other

Date 1/28/79
Ambient air
Temperature 69 °F
Pressure - in. Hg
Humidity 32 %

Reading No.				1.	2.	3.
T, min	94079.000	94092.000	94101.000	94133.000	94175.000	94193.000
W, lb	2963.700	2963.400	2958.900	2962.100	2961.100	2960.300
ΔT, h					0.700	0.300
ΔW, lb					-1.000	-0.800
ΣΔT, h					0.700	1.000
ΣΔW, lb					-1.000	-1.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.429	-2.667
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.429	-1.800
$\bar{X}$, lb/h					-1.429	-1.614

TABLE A-57 (continued) Page 2 of 7

Reading No.	4.	5.	6.	7.	8.	9.
T, min	94232.000	94257.000	94298.000	94312.000	94346.000	94379.000
W, lb	2959.500	2958.500	2957.400	2957.000	2956.400	2954.600
ΔT, h	0.650	0.417	0.683	0.233	0.567	0.550
ΔW, lb	-0.800	-1.000	-1.100	-0.400	-0.600	-1.800
$\Sigma\Delta T$, h	1.650	2.067	2.750	2.983	3.550	4.100
$\Sigma\Delta W$, lb	-2.600	-3.600	-4.700	-5.100	-5.700	-7.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.231	-2.400	-1.610	-1.714	-1.059	-3.273
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.576	-1.742	-1.709	-1.709	-1.606	-1.829
$\bar{X}$, lb/h	-1.601	-1.637	-1.651	-1.661	-1.653	-1.675

(continued)

TABLE A-57 (continued) Page 3 of 7

Reading No.	10.	11.	12.	13.	14.	15.
T, min	94413.000	94445.000	94480.000	94500.000	94534.000	94554.000
W, lb	2953.900	2952.600	2951.200	2950.700	2949.600	2948.700
ΔT, h	0.567	0.533	0.583	0.333	0.567	0.333
ΔW, lb	-0.700	-1.300	-1.400	-0.500	-1.100	-0.900
$\Sigma\Delta T$, h	4.667	5.200	5.783	6.117	6.683	7.017
$\Sigma\Delta W$, lb	-8.200	-9.500	-10.900	-11.400	-12.500	-13.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.235	-2.438	-2.400	-1.500	-1.941	-2.700
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.757	-1.827	-1.885	-1.864	-1.870	-1.910
$\bar{X}$, lb/h	-1.684	-1.698	-1.715	-1.728	-1.739	-1.751

(continued)

TABLE A-57 (continued) Page 4 of 7

Reading No.	16.	17.	18.	19.	20.	21.
T, min	94588.000	94604.000	94633.000	94672.000	94694.000	94747.000
W, lb	2947.800	2947.000	2946.600	2945.000	2944.200	2942.600
ΔT, h	0.567	0.267	0.483	0.650	0.367	0.883
ΔW, lb	-0.900	-0.800	-0.400	-1.600	-0.800	-1.600
ΣΔT, h	7.583	7.850	8.333	8.983	9.350	10.233
ΣΔW, lb	-14.300	-15.100	-15.500	-17.100	-17.900	-19.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.588	-3.000	-0.828	-2.462	-2.182	-1.811
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-1.886	-1.924	-1.860	-1.904	-1.914	-1.906
$\bar{X}$, lb/h	-1.760	-1.770	-1.775	-1.783	-1.789	-1.795

(continued)

TABLE A-57 (continued)

Page 5 of 7

Reading No.	22.	23.	24.	25.	26.	27.
T, min	94772.000	94799.000	94840.000	94880.000	94912.000	94939.000
W, lb	2941.700	2940.400	2938.800	2937.500	2936.250	2935.750
ΔT, h	0.417	0.450	0.683	0.667	0.533	0.450
ΔW, lb	-0.900	-1.300	-1.600	-1.300	-1.250	-0.500
ΣΔT, h	10.650	11.100	11.783	12.450	12.983	13.433
ΣΔW, lb	-20.400	-21.700	-23.300	-24.600	-25.850	-26.350
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.160	-2.889	-2.341	-1.950	-2.344	-1.111
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-1.915	-1.955	-1.977	-1.976	-1.991	-1.962
$\bar{X}$, lb/h	-1.801	-1.808	-1.815	-1.822	-1.829	-1.834

(continued)

TABLE A-57 (continued)

Page 6 of 7

Reading No.	28.	29.	30.	31.	32.	33.
T, min	94979.000	94997.000	95074.000	95037.000	95107.000	95140.000
W, lb	2934.400	2933.750	2931.300	2932.500	2930.450	2929.500
ΔT, h	0.667	0.300	1.283	-0.617	1.167	0.550
ΔW, lb	-1.350	-0.650	-2.450	1.200	-2.050	-0.950
$\Sigma\Delta T$, h	14.100	14.400	15.683	15.067	16.233	16.783
$\Sigma\Delta W$, lb	-27.700	-28.350	-30.800	-29.600	-31.650	-32.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.025	-2.167	-1.909	-1.946	-1.757	-1.727
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.965	-1.969	-1.964	-1.965	-1.950	-1.942
$\bar{X}$, lb/h	-1.839	-1.843	-1.848	-1.851	-1.855	-1.857

(continued)

TABLE A-57 (continued) Page 7 of 7

Reading No.	34.	35.	36.	37.		
T, min	95173.000	95208.000	95233.000	95265.000	95288.000	95329.000
W, lb	2928.250	2927.350	2925.750	2925.250	2925.000	2925.050
ΔT, h	0.550	0.583	0.417	0.533		
ΔW, lb	-1.250	-0.900	-1.600	-0.500		
$\Sigma\Delta T$, h	17.333	17.917	18.333	18.867		
$\Sigma\Delta W$, lb	-33.850	-34.750	-36.350	-36.850		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.273	-1.543	-3.840	-0.937		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.953	-1.940	-1.983	-1.953		
$\bar{X}$, lb/h	-1.860	-1.863	-1.866	-1.868		

n 36

Slope -2.005

Intercept 0.758

S_{yx} 0.291

S_x 5.516

S_a 0.009

S_b 0.113

S_c 0.667

$t_{\alpha/2}$ 2.032

r -1.000

Confidence interval

2.005 ± 0.018

TABLE A-58 SUMMARY OF DATA FROM TEST NO. 33

Page 1 of 7

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 125 % PC x SC ____ A 70 %
Inlet air x Exhaust air x V 16 ft/min
Other

Date 1/29/79
Ambient air
Temperature 69 °F
Pressure - in. Hg
Humidity 33 %

Reading No.				1.	2.	3.
T, min	95610.000	95636.000	95647.000	95677.000	95738.000	95752.000
W, lb	3794.500	3790.000	3788.250	3786.000	3784.300	3783.900
ΔT, h					1.017	0.233
ΔW, lb					-1.700	-0.400
ΣΔT, h					1.017	1.250
ΣΔW, lb					-1.700	-2.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.672	-1.714
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h					-1.672	-1.680
$\bar{X}$, lb/h					-1.672	-1.676

TABLE A-58 (continued)

Page 2 of 7

Reading No.	4.	5.	6.	7.	8.	9.
T, min	95778.000	95797.000	95831.000	95852.000	95889.000	95924.000
W, lb	3783.000	3782.600	3781.500	3780.600	3779.600	3778.400
ΔT, h	0.433	0.317	0.567	0.350	0.617	0.583
ΔW, lb	-0.900	-0.400	-1.100	-0.900	-1.000	-1.200
ΣΔT, h	1.683	2.000	2.567	2.917	3.533	4.117
ΣΔW, lb	-3.000	-3.400	-4.500	-5.400	-6.400	-7.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.077	-1.263	-1.941	-2.571	-1.622	-2.057
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-1.782	-1.700	-1.753	-1.851	-1.811	-1.846
$\bar{X}$, lb/h	-1.711	-1.709	-1.718	-1.740	-1.750	-1.762

(continued)

TABLE A-58 (continued)

Reading No.	10.	11.	12.	13.	14.	15.
T, min	95955.000	95989.000	96020.000	96048.000	96081.000	96107.000
W, lb	3777.400	3776.200	3750.000	3774.000	3772.600	3771.600
ΔT, h	0.517	0.567	0.517	0.467	0.550	0.433
ΔW, lb	-1.000	-1.200	-26.200	24.000	-1.400	-1.000
$\Sigma\Delta T$, h	4.633	5.200	5.717	6.183	6.733	7.167
$\Sigma\Delta W$, lb	-8.600	-9.800	-36.000	-12.000	-13.400	-14.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.935	-2.118	-50.710	51.429	-2.545	-2.308
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.856	-1.885	-6.297	-1.941	-1.990	-2.009
$\bar{X}$, lb/h	-1.773	-1.784	-2.194	-2.173	-2.159	-2.148

(continued)

TABLE A-58 (continued)

Page 4 of 7

Reading No.	16.	17.	18.	19.	20.	21.
T, min	96145.000	96177.000	96211.000	96243.000	96271.000	96303.000
W, lb	3769.800	3767.800	3766.250	3764.800	3763.700	3760.900
ΔT, h	0.633	0.533	0.567	0.533	0.467	0.533
ΔW, lb	-1.800	-2.000	-1.550	-1.450	-1.100	-2.800
ΣΔT, h	7.800	8.333	8.900	9.433	9.900	10.433
ΣΔW, lb	-16.200	-18.200	-19.750	-21.200	-22.300	-25.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.842	-3.750	-2.735	-2.719	-2.357	-5.250
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.077	-2.184	-2.219	-2.247	-2.253	-2.406
$\bar{X}$, lb/h	-2.143	-2.146	-2.150	-2.156	-2.161	-2.173

(continued)

TABLE A-58 (continued) Page 5 of 7

Reading No.	22.	23.	24.	25.	26.	27.
T, min	96329.000	96368.000	96399.000	96425.000	96452.000	96484.000
W, lb	3760.300	3757.600	3756.300	3756.250	3754.550	3754.300
ΔT, h	0.433	0.650	0.517	0.433	0.450	0.533
ΔW, lb	-0.600	-2.700	-1.300	-0.050	-1.700	-0.250
$\Sigma\Delta T$, h	10.867	11.517	12.033	12.467	12.917	13.450
$\Sigma\Delta W$, lb	-25.700	-28.400	-29.700	-29.750	-31.450	-31.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.385	-4.154	-2.516	-0.115	-3.778	-0.469
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.365	-2.466	-2.468	-2.386	-2.435	-2.357
$\bar{X}$, lb/h	-2.182	-2.195	-2.207	-2.214	-2.223	-2.228

(continued)

TABLE A-58 (continued) Page 6 of 7

Reading No.	28.	29.	30.	31.	32.	33.
T, min	96510.000	96549.000	96575.000	96607.000	96634.000	96666.000
W, lb	3752.600	3751.250	3750.050	3749.500	3748.300	3747.000
ΔT, h	0.433	0.650	0.433	0.533	0.450	0.533
ΔW, lb	-1.700	-1.350	-1.200	-0.550	-1.200	-1.300
ΣΔT, h	13.883	14.533	14.967	15.500	15.950	16.483
ΣΔW, lb	-33.400	-34.750	-35.950	-36.500	-37.700	-39.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.923	-2.077	-2.769	-1.031	-2.667	-2.437
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-2.406	-2.391	-2.402	-2.355	-2.364	-2.366
$\bar{X}$, lb/h	-2.235	-2.241	-2.246	-2.250	-2.253	-2.257

(continued)

TABLE A-58 (continued)

Page 7 of 7

Reading No.	34.	35.	36.	37.		
T, min	96696.000	96721.000	96751.000	96781.000	96809.000	96825.000
W, lb	3745.800	3745.750	3744.000	3743.000	3742.500	3746.000
ΔT, h	0.500	0.417	0.500	0.500		
ΔW, lb	-1.200	-0.050	-1.750	-1.000		
$\Sigma\Delta T$, h	16.983	17.400	17.900	18.400		
$\Sigma\Delta W$, lb	-40.200	-40.250	-42.000	-43.000		
$\left(\frac{\Delta W}{\Delta T}\right)_,$ lb/h	-2.400	-0.120	-3.500	-2.000		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)_,$ lb/h	-2.367	-2.313	-2.346	-2.337		
$\bar{X}$, lb/h	-2.260	-2.262	-2.264	-2.266		

n 36

Slope -2.406

Intercept 0.524

S_{yx} 4.091

S_x 5.390

S_a 0.128

S_b 0.118

S_b 12.270

$t_{\alpha/2}$ 2.032

r -0.988

Confidence interval

2.406 ± 0.260

TABLE A-59 SUMMARY OF DATA FROM TEST NO. 33

Page 1 of 7

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 75 % PC x SC ____ A 50 %
Inlet air x Exhaust air x V 16 ft/min
Other

Date 1/29/79
Ambient air
Temperature 69 °F
Pressure - in. Hg
Humidity 33 %

Reading No.				1.	2.	3.
T, min	95610.000	95631.000	95647.000	95677.000	95738.000	95752.000
W, lb	2933.950	2934.750	2928.500	2931.500	2929.800	2928.400
ΔT, h					1.017	0.233
ΔW, lb					-1.700	-1.400
$\Sigma\Delta T$, h					1.017	1.250
$\Sigma\Delta W$, lb					-1.700	-3.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.672	-6.000
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.672	-2.480
$\bar{X}$, lb/h					-1.672	-2.076

TABLE A-59 (continued)

Page 2 of 7

Reading No.	4.	5.	6.	7.	8.	9.
T, min	95778.000	95797.000	95831.000	95852.000	95899.000	95924.000
W, lb	2928.400	2927.800	2926.700	2926.200	2924.700	2923.500
ΔT, h	0.433	0.317	0.567	0.350	0.783	0.417
ΔW, lb	0.000	-0.600	-1.100	-0.500	-1.500	-1.200
$\Sigma\Delta T$, h	1.683	2.000	2.567	2.917	3.700	4.117
$\Sigma\Delta W$, lb	-3.100	-3.700	-4.800	-5.300	-6.800	-8.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	0.000	-1.895	-1.941	-1.429	-1.915	-2.880
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.842	-1.850	-1.870	-1.817	-1.838	-1.943
$\bar{X}$, lb/h	-1.998	-1.961	-1.943	-1.922	-1.910	-1.914

(continued)

TABLE A-59 (continued)

Reading No.	10.	11.	12.	13.	14.	15.
T, min	95955.000	95989.000	96020.000	96048.000	96081.000	96107.000
W, lb	2922.400	2921.200	2920.000	2919.200	2918.800	2918.000
ΔT, h	0.517	0.567	0.517	0.467	0.550	0.433
ΔW, lb	-1.100	-1.200	-1.200	-0.800	-0.400	-0.800
ΣΔT, h	4.633	5.200	5.717	6.183	6.733	7.167
ΣΔW, lb	-9.100	-10.300	-11.500	-12.300	-12.700	-13.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.129	-2.118	-2.323	-1.714	-0.727	-1.846
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.964	-1.981	-2.012	-1.989	-1.886	-1.884
$\bar{X}$, lb/h	-1.920	-1.926	-1.934	-1.938	-1.934	-1.931

(continued)

TABLE A-59 (continued)

Page 4 of 7

Reading No.	16.	17.	18.	19.	20.	21.
T, min	96145.000	96177.000	96211.000	96243.000	96271.000	96303.000
W, lb	2917.000	2916.200	2915.500	2914.250	2913.550	2912.350
ΔT, h	0.633	0.533	0.567	0.533	0.467	0.533
ΔW, lb	-1.000	-0.800	-0.700	-1.250	-0.700	-1.200
ΣΔT, h	7.800	8.333	8.900	9.433	9.900	10.433
ΣΔW, lb	-14.500	-15.300	-16.000	-17.250	-17.950	-19.150
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.579	-1.500	-1.235	-2.344	-1.500	-2.250
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-1.859	-1.836	-1.798	-1.829	-1.813	-1.835
$\bar{X}$, lb/h	-1.926	-1.920	-1.913	-1.908	-1.903	-1.900

(continued)

TABLE A-59 (continued)

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Reading No.	22.	23.	24.	25.	26.	27.
T, min	96329.000	96368.000	96399.000	96425.000	96452.000	96484.000
W, lb	2911.700	2910.150	2909.800	2909.350	2908.250	2907.300
ΔT, h	0.433	0.650	0.517	0.433	0.450	0.533
ΔW, lb	-0.650	-1.550	-0.350	-0.450	-1.100	-0.950
$\Sigma \Delta T$, h	10.867	11.517	12.033	12.467	12.917	13.450
$\Sigma \Delta W$, lb	-19.800	-21.350	-21.700	-22.150	-23.250	-24.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.500	-2.385	-0.677	-1.038	-2.444	-1.781
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-1.822	-1.854	-1.803	-1.777	-1.800	-1.799
$\bar{X}$, lb/h	-1.896	-1.894	-1.890	-1.886	-1.882	-1.879

(continued)

TABLE A-59 (continued)

Page 6 of 7

Reading No.	28.	29.	30.	31.	32.	33.
T, min	96510.000	96549.000	96575.000	96607.000	96634.000	96666.000
W, lb	2906.600	2904.600	2904.100	2903.000	2902.000	2900.500
ΔT, h	0.433	0.650	0.433	0.533	0.450	0.533
ΔW, lb	-0.700	-2.000	-0.500	-1.100	-1.000	-1.500
$\Sigma\Delta T$, h	13.883	14.533	14.967	15.500	15.950	16.483
$\Sigma\Delta W$, lb	-24.900	-26.900	-27.400	-28.500	-29.500	-31.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.615	-3.077	-1.154	-2.063	-2.222	-2.812
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.794	-1.851	-1.831	-1.839	-1.850	-1.881
$\bar{X}$, lb/h	-1.876	-1.875	-1.873	-1.872	-1.871	-1.872

(continued)

TABLE A-59 (continued) Page 7 of 7

Reading No.	34.	35.	36.	37.		
T, min	96691.000	96721.000	96751.000	96781.000	96809.000	96858.000
W, lb	2899.500	2898.250	2897.250	2896.500	2896.500	2897.000
ΔT, h	0.417	0.500	0.500	0.500		
ΔW, lb	-1.000	-1.250	-1.000	-0.750		
ΣΔT, h	16.900	17.400	17.900	18.400		
ΣΔW, lb	-32.000	-33.250	-34.250	-35.000		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.400	-2.500	-2.000	-1.500		
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-1.893	-1.911	-1.913	-1.902		
$\bar{X}$, lb/h	-1.872	-1.874	-1.875	-1.875		

n 36

Slope -1.850

Intercept -0.087

S_{yx} 0.553

S_x 5.381

S_a 0.017

S_b 0.118

S_c 0.943

$t_{\alpha/2}$ 2.032

r -1.000

Confidence interval

1.850 ± 2.049

TABLE A-60 SUMMARY OF DATA FROM TEST NO. 34

Page 1 of 7

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC x A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 1/31/79
Ambient air
Temperature ____ °F
Pressure ____ in. Hg
Humidity ____ %

Reading No.				1.	2.	3.
T, min	97314.000	97346.000	97354.000	97410.000	97442.000	97484.000
W, lb	3510.300	3510.400	3502.800	3504.000	3502.400	3501.200
ΔT, h					0.533	0.700
ΔW, lb					-1.600	-1.200
$\Sigma\Delta T$, h					0.533	1.233
$\Sigma\Delta W$, lb					-1.600	-2.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-3.000	-1.714
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-3.000	-2.270
$\bar{X}$, lb/h					-3.000	-2.635

TABLE A-60 (continued) Page 2 of 7

Reading No.	4.	5.	6.	7.	8.	9.
T, min	97510.000	97536.000	97568.000	97594.000	97628.000	97666.000
W, lb	3499.200	3497.800	3496.800	3495.600	3496.600	3494.250
ΔT, h	0.433	0.433	0.533	0.433	0.567	0.633
ΔW, lb	-2.000	-1.400	-1.000	-1.200	1.000	-2.350
$\Sigma\Delta T$, h	1.667	2.100	2.633	3.067	3.633	4.267
$\Sigma\Delta W$, lb	-4.800	-6.200	-7.200	-8.400	-7.400	-9.750
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-4.615	-3.231	-1.875	-2.769	1.765	-3.711
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.880	-2.952	-2.734	-2.739	-2.037	-2.285
$\bar{X}$, lb/h	-2.717	-2.776	-2.767	-2.763	-2.659	-2.612

(continued)

TABLE A-60 (continued) Page 3 of 7

Reading No.	10.	11.	12.	13.	14.	15.
T, min	97693.000	97724.000	97751.000	97783.000	97816.000	97841.000
W, lb	3493.250	3492.900	3491.600	3490.600	3489.000	3488.750
ΔT, h	0.450	0.517	0.450	0.533	0.550	0.417
ΔW, lb	-1.000	-0.350	-1.300	-1.000	-1.600	-0.250
$\Sigma\Delta T$, h	4.717	5.233	5.683	6.217	6.767	7.183
$\Sigma\Delta W$, lb	-10.750	-11.100	-12.400	-13.400	-15.000	-15.250
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.222	-0.677	-2.889	-1.875	-2.909	-0.600
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.279	-2.121	-2.182	-2.155	-2.217	-2.123
$\bar{X}$, lb/h	-2.575	-2.530	-2.498	-2.470	-2.450	-2.427

(continued)

TABLE A-60 (continued) Page 4 of 7

Reading No.	16.	17.	18.	19.	20.	21.
T, min	97881.000	97906.000	97939.000	97964.000	97991.000	98024.000
W, lb	3487.100	3486.150	3485.000	3484.650	3483.500	3482.400
ΔT, h	0.667	0.417	0.550	0.417	0.450	0.550
ΔW, lb	-1.650	-0.950	-1.150	-0.350	-1.150	-1.100
$\Sigma\Delta T$, h	7.850	8.267	8.817	9.233	9.683	10.233
$\Sigma\Delta W$, lb	-16.900	-17.850	-19.000	-19.350	-20.500	-21.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.475	-2.280	-2.091	-0.840	-2.556	-2.000
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.153	-2.159	-2.155	-2.096	-2.117	-2.111
$\bar{X}$, lb/h	-2.409	-2.393	-2.379	-2.363	-2.350	-2.338

(continued)

TABLE A-60 (continued)

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Reading No.	22.	23.	24.	25.	26.	27.
T, min	98055.000	98082.000	98112.000	98137.000	98166.000	98199.000
W, lb	3482.000	3480.600	3479.550	3478.750	3478.250	3477.750
ΔT, h	0.517	0.450	0.500	0.417	0.483	0.550
ΔW, lb	-0.400	-1.400	-1.050	-0.800	-0.500	-0.500
ΣΔT, h	10.750	11.200	11.700	12.117	12.600	13.150
ΣΔW, lb	-22.000	-23.400	-24.450	-25.250	-25.750	-26.250
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.774	-3.111	-2.100	-1.920	-1.034	-0.909
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-2.047	-2.089	-2.090	-2.084	-2.044	-1.996
$\bar{X}$, lb/h	-2.324	-2.314	-2.304	-2.295	-2.285	-2.274

(continued)

TABLE A-60 (continued) Page 6 of 7

Reading No.	28.	29.	30.	31.	32.	33.
T, min	.98224.000	98253.000	98285.000	98311.000	98344.000	98381.000
W, lb	3476.750	3475.500	3474.750	3474.250	3473.000	3472.500
ΔT, h	0.417	0.483	0.533	0.433	0.550	0.617
ΔW, lb	-1.000	-1.250	-0.750	-0.500	-1.250	-0.500
ΣΔT, h	13.567	14.050	14.583	15.017	15.567	16.183
ΣΔW, lb	-27.250	-28.500	-29.250	-29.750	-31.000	-31.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.400	-2.586	-1.406	-1.154	-2.273	-0.811
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.009	-2.028	-2.006	-1.981	-1.991	-1.946
$\bar{X}$, lb/h	-2.264	-2.255	-2.247	-2.238	-2.230	-2.221

(continued)

TABLE A-60 (continued)

Page 7 of 7

Reading No.	34.	35.	36.	37.		
T, min	98404.000	98436.000	98468.000	98502.000	98532.000	98551.000
W, lb	3471.000	3470.650	3469.250	3468.750	3468.250	3471.850
ΔT, h	0.383	0.533	0.533	0.567		
ΔW, lb	-1.500	-0.350	-1.400	-0.500		
$\Sigma\Delta T$, h	16.567	17.100	17.633	18.200		
$\Sigma\Delta W$, lb	-33.000	-33.350	-34.750	-35.250		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.913	-0.656	-2.625	-0.882		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.992	-1.950	-1.971	-1.937		
$\bar{X}$, lb/h	-2.214	-2.206	-2.200	-2.192		

n 36

Slope -1.885

Intercept -1.750

S_{yx} 0.561

S_x 5.246

S_a 0.018

S_b 0.120

S_c 1.189

$t_{\alpha/2}$ 2.030

r -1.000

Confidence interval

-1.885 ± 0.036

TABLE A-61 SUMMARY OF DATA FROM TEST NO. 34

Page 1 of 7

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC x A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 1/31/79
Ambient air
Temperature 68 °F
Pressure - in. Hg
Humidity 41 %

Reading No.				1.	2.	3.
T, min	97314.000	97340.000	97349.000	97394.000	97442.000	97484.000
W, lb	2978.000	2977.000	2975.800	2975.400	2974.400	2973.800
ΔT, h					0.800	0.700
ΔW, lb					-1.000	-0.600
ΣΔT, h					0.800	1.500
ΣΔW, lb					-1.000	-1.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.250	-0.857
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.250	-1.067
$\bar{X}$, lb/h					-1.250	-1.158

TABLE A-61 (continued) Page 2 of 7

Reading No.	4.	5.	6.	7.	8.	9.
T, min	97510.000	97536.000	97568.000	97594.000	97628.000	97666.000
W, lb	2972.300	2971.200	2970.800	2970.000	2969.050	2968.700
ΔT, h	0.433	0.433	0.533	0.433	0.567	0.633
ΔW, lb	-1.500	-1.100	-0.400	-0.800	-0.950	-0.350
$\Sigma\Delta T$, h	1.933	2.367	2.900	3.333	3.900	4.533
$\Sigma\Delta W$, lb	-3.100	-4.200	-4.600	-5.400	-6.350	-6.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.462	-2.538	-0.750	-1.846	-1.676	-0.553
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.603	-1.775	-1.586	-1.620	-1.628	-1.478
$\bar{X}$, lb/h	-1.307	-1.424	-1.456	-1.483	-1.504	-1.501

(continued)

TABLE A-61 (continued)

Page 3 of 7

Reading No.	10.	11.	12.	13.	14.	15.
T, min	97693.000	97724.000	97751.000	97783.000	97816.000	97841.000
W, lb	2967.800	2966.100	2966.100	2964.900	2963.600	2962.200
ΔT, h	0.450	0.517	0.450	0.533	0.550	0.417
ΔW, lb	-0.900	-1.700	0.000	-1.200	-1.300	-1.400
$\Sigma\Delta T$, h	4.983	5.500	5.950	6.483	7.033	7.450
$\Sigma\Delta W$, lb	-7.600	-9.300	-9.300	-10.500	-11.800	-13.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.000	-3.290	0.000	-2.250	-2.364	-3.360
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.525	-1.691	-1.563	-1.620	-1.678	-1.772
$\bar{X}$, lb/h	-1.504	-1.522	-1.526	-1.534	-1.545	-1.561

(continued)

TABLE A-61 (continued) Page 4 of 7

Reading No.	16.	17.	18.	19.	20.	21.
T, min	97881.000	97906.000	97939.000	97964.000	97991.000	98024.000
W, lb	2962.250	2960.850	2960.050	2959.300	2958.200	2957.150
ΔT, h	0.667	0.417	0.550	0.417	0.450	0.550
ΔW, lb	0.050	-1.400	-0.800	-0.750	-1.100	-1.050
ΣΔT, h	8.117	8.533	9.083	9.500	9.950	10.500
ΣΔW, lb	-13.150	-14.550	-15.350	-16.100	-17.200	-18.250
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	0.075	-3.360	-1.455	-1.800	-2.444	-1.909
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.620	-1.705	-1.690	-1.695	-1.729	-1.738
$\bar{X}$, lb/h	-1.565	-1.574	-1.581	-1.587	-1.594	-1.602

(continued)

TABLE A-61 (continued) Page 5 of 7

Reading No.	22.	23.	24.	25.	26.	27.
T, min	98055.000	98082.000	98112.000	98137.000	98166.000	98199.000
W, lb	2956.400	2955.250	2954.500	2952.750	2952.250	2950.900
ΔT, h	0.517	0.450	0.500	0.417	0.483	0.550
ΔW, lb	-0.750	-1.150	-0.750	-1.750	-0.500	-1.350
$\Sigma\Delta T$, h	11.017	11.467	11.967	12.383	12.867	13.417
$\Sigma\Delta W$, lb	-19.000	-20.150	-20.900	-22.650	-23.150	-24.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.452	-2.556	-1.500	-4.200	-1.034	-2.455
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.725	-1.757	-1.747	-1.829	-1.799	-1.826
$\bar{X}$, lb/h	-1.607	-1.614	-1.620	-1.629	-1.636	-1.643

(continued)

TABLE A-61 (continued) Page 6 of 7

Reading No.	28.	29.	30.	31.	32.	33.
T, min	98224.000	98253.000	98285.000	98311.000	98344.000	98381.000
W, lb	2949.750	2947.250	2946.750	2945.750	2943.750	2942.000
ΔT, h	0.417	0.483	0.533	0.433	0.550	0.617
ΔW, lb	-1.150	-2.500	-0.500	-1.000	-2.000	-1.750
$\Sigma\Delta T$, h	13.833	14.317	14.850	15.283	15.833	16.450
$\Sigma\Delta W$, lb	-25.650	-28.150	-28.650	-29.650	-31.650	-33.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.760	-5.172	-0.938	-2.308	-3.636	-2.838
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.854	-1.966	-1.929	-1.940	-1.999	-2.030
$\bar{X}$, lb/h	-1.651	-1.662	-1.671	-1.680	-1.690	-1.701

(continued)

TABLE A-61 (continued) Page 7 of 7

Reading No.	34.	35.	36.	37.		
T, min	98404.000	98436.000	98468.000	98502.000	98352.000	98576.000
W, lb	2941.000	2939.750	2939.000	2938.250	2937.750	2938.000
ΔT, h	0.383	0.533	0.533	0.567		
ΔW, lb	-1.000	-1.250	-0.750	-0.750		
$\Sigma\Delta T$, h	16.833	17.367	17.900	18.467		
$\Sigma\Delta W$, lb	-34.400	-35.650	-36.400	-37.150		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.609	-2.344	-1.406	-1.324		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.044	-2.053	-2.034	-2.012		
$\bar{X}$, lb/h	-1.711	-1.721	-1.730	-1.738		

n 36

Slope -2.082

Intercept 2.370

S_{yx} 1.153

S_x 5.246

S_a 0.037

S_b 0.125

S_c 1.140

$t_{\alpha/2}$ 2.032

r -1.000

Confidence interval

2.082 ± 0.085

TABLE A-62 SUMMARY OF DATA FROM TEST NO. 35 **Page** 1 **of** 7

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

Date 2/2/79
Ambient air
Temperature 68 **°F**
Pressure - **in. Hg**
Humidity 37 **%**

FB 50 **%** **PC** x **SC** ____ **A** 50 **%**
Inlet air x **Exhaust air** x **V** 16 **ft/min**
Other Top on Degreaser B left open between each cycle

Reading No.				1.	2.	3.
T, min	101080.000	101102.000	101133.000	101169.000	101226.000	101256.000
W, lb	3434.850	3433.300	3432.100	3429.800	3424.250	3422.750
ΔT, h					0.950	0.500
ΔW, lb					-5.550	-1.500
$\Sigma\Delta T$, h					0.950	1.450
$\Sigma\Delta W$, lb					-5.550	-7.050
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-5.842	-3.000
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-5.842	-4.862
$\bar{X}$, lb/h					-5.842	-5.352

TABLE A-62 (continued)

Page 2 of 7

Reading No.	4.	5.	6.	7.	8.	9.
T, min	101286.000	101316.000	101346.000	101374.000	101407.000	101434.000
W, lb	3420.900	3419.250	3418.250	3417.750	3415.250	3413.500
ΔT, h	0.500	0.500	0.500	0.467	0.550	0.450
ΔW, lb	-1.850	-1.650	-1.000	-0.500	-2.500	-1.750
$\Sigma\Delta T$, h	1.950	2.450	2.950	3.417	3.967	4.417
$\Sigma\Delta W$, lb	-8.900	-10.550	-11.550	-12.050	-14.550	-16.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.700	-3.300	-2.000	-1.071	-4.545	-3.889
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-4.564	-4.306	-3.915	-3.527	-3.668	-3.691
$\bar{X}$, lb/h	-5.089	-4.894	-4.698	-4.503	-4.384	-4.297

(continued)

TABLE A-62 (continued)

Page 3 of 7

Reading No.	10.	11.	12.	13.	14.	15.
T, min	101469.000	101494.000	101542.000	101574.000	101593.000	101631.000
W, lb	3412.000	3411.250	3408.600	3407.400	3406.400	3405.000
ΔT, h	0.583	0.417	0.800	0.533	0.317	0.633
ΔW, lb	-1.500	-0.750	-2.650	-1.200	-1.000	-1.400
ΣΔT, h	5.000	5.417	6.217	6.750	7.067	7.700
ΣΔW, lb	-17.800	-18.550	-21.200	-22.400	-23.400	-24.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.571	-1.800	-3.313	-2.250	-3.158	-2.211
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-3.560	-3.425	-3.410	-3.319	-3.311	-3.221
$\bar{X}$, lb/h	-4.215	-4.136	-4.070	-4.007	-3.954	-3.901

(continued)

TABLE A-62 (continued) Page 4 of 7

Reading No.	16.	17.	18.	19.	20.	21.
T, min	101645.000	101683.000	101705.000	101749.000	101801.000	101839.000
W, lb	3404.300	3402.900	3402.200	3400.400	3397.700	3396.800
ΔT, h	0.233	0.633	0.367	0.733	0.867	0.633
ΔW, lb	-0.700	-1.400	-0.700	-1.800	-2.700	-0.900
$\Sigma\Delta T$, h	7.933	8.567	8.933	9.667	10.533	11.167
$\Sigma\Delta W$, lb	-25.500	-26.900	-27.600	-29.400	-32.100	-33.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.000	-2.211	-1.909	-2.455	-3.115	-1.421
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-3.214	-3.140	-3.090	-3.041	-3.047	-2.955
$\bar{X}$, lb/h	-3.856	-3.811	-3.768	-3.728	-3.692	-3.655

(continued)

TABLE A-62 (continued) Page 5 of 7

Reading No.	22.	23.	24.	25.	26.	27.
T, min	101865.000	101924.000	101950.000	102008.000	102042.000	102069.000
W, lb	3395.200	3393.300	3391.900	3389.400	3388.000	3381.000
ΔT, h	0.433	0.983	0.433	0.967	0.567	0.450
ΔW, lb	-1.600	-1.900	-1.400	-2.500	-1.400	-7.000
$\Sigma\Delta T$, h	11.600	12.583	13.017	13.983	14.550	15.000
$\Sigma\Delta W$, lb	-34.600	-36.500	-37.900	-40.400	-41.800	-48.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.692	-1.932	-3.231	-2.586	-2.471	-15.556
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.983	-2.901	-2.912	-2.889	-2.873	-3.253
$\bar{X}$, lb/h	-3.623	-3.591	-3.561	-3.533	-3.507	-3.497

(continued)

TABLE A-62 (continued)

Page 6 of 7

Reading No.	28.	29.	30.	31.	32.	33.
T, min	102109.000	102133.000	102163.000	102196.000	102227.000	102251.000
W, lb	3385.400	3384.200	3382.400	3381.800	3380.300	3379.700
ΔT, h	0.667	0.400	0.500	0.550	0.517	0.400
ΔW, lb	4.400	-1.200	-1.800	-0.600	-1.500	-0.600
ΣΔT, h	15.667	16.067	16.567	17.117	17.633	18.033
ΣΔW, lb	-44.400	-45.600	-47.400	-48.000	-49.500	-50.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	6.600	-3.000	-3.600	-1.091	-2.903	-1.500
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-2.834	-2.838	-2.861	-2.804	-2.807	-2.778
$\bar{X}$, lb/h	-3.472	-3.450	-3.429	-3.409	-3.389	-3.370

(continued)

TABLE A-62 (continued)

Reading No.	34.	35.	36.	37.		
T, min	102290.000	102330.000	102367.000	102386.000		
W, lb	3377.900	3376.000	3375.600	3377.000		
ΔT, h	0.650	0.667	0.617	0.317		
ΔW, lb	-1.800	-1.900	-0.400	1.400		
$\Sigma\Delta T$, h	18.683	19.350	19.967	20.283		
$\Sigma\Delta W$, lb	-51.900	-53.800	-54.200	-52.800		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.769	-2.850	-0.649	4.421		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.778	-2.780	-2.715	-2.603		
$\bar{X}$, lb/h	-3.352	-3.335	-3.318	-3.298		

n 36

Slope -2.553

Intercept -4.598

S_{yx} 1.330

S_x 5.993

S_a 0.038

S_b 0.115

S_c 3.104

$t_{\alpha/2}$ 2.030

r -0.997

Confidence interval

-2.553 ± 0.077

TABLE A-63 SUMMARY OF DATA FROM TEST NO. 35

Page 1 of 7

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC ____ A 50 %
Inlet air x Exhaust air x V 16 ft/min
Other Top was left open for one-half hour between each load cycle

Date 2/2/79
Ambient air
Temperature 68 °F
Pressure - in. Hg
Humidity 37 %

Reading No.				1.	2.	3.
T, min	101180.000	101202.000	101212.000	101232.000	101256.000	101286.000
W, lb	2897.650	2895.150	2890.500	2896.000	2900.500	2900.500
ΔT, h					0.400	0.500
ΔW, lb					4.500	0.000
ΣΔT, h					0.400	0.900
ΣΔW, lb					4.500	4.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					11.250	0.000
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h					11.250	5.000
$\bar{X}$, lb/h					11.250	8.125

TABLE A-63 (continued) Page 2 of 7

Reading No.	4.	5.	6.	7.	8.	9.
T, min	101316.000	101346.000	101373.000	101404.000	101434.000	101469.000
W, lb	2899.900	2894.400	2893.150	2892.900	2892.500	2892.250
ΔT, h	0.500	0.500	0.450	0.517	0.500	0.583
ΔW, lb	-0.600	-5.500	-1.250	-0.250	-0.400	-0.250
$\Sigma\Delta T$, h	1.400	1.900	2.350	2.867	3.367	3.950
$\Sigma\Delta W$, lb	3.900	-1.600	-2.850	-3.100	-3.500	-3.750
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.200	-11.000	-2.778	-0.484	-0.800	-0.429
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	2.786	-0.842	-1.213	-1.081	-1.040	-0.949
$\bar{X}$, lb/h	6.345	4.548	3.396	2.650	2.123	1.739

(continued)

TABLE A-63 (continued) Page 3 of 7

Reading No.	10.	11.	12.	13.	14.	15.
T, min	101511.000	101540.000	101575.000	101592.000	101629.000	101643.000
W, lb	2893.900	2893.500	2892.800	2892.300	2891.200	2890.700
ΔT, h	0.700	0.483	0.583	0.283	0.617	0.233
ΔW, lb	1.650	-0.400	-0.700	-0.500	-1.100	-0.500
ΣΔT, h	4.650	5.133	5.717	6.000	6.617	6.850
ΣΔW, lb	-2.100	-2.500	-3.200	-3.700	-4.800	-5.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	2.357	-0.828	-1.200	-1.765	-1.784	-2.143
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-0.452	-0.487	-0.560	-0.617	-0.725	-0.774
$\bar{X}$, lb/h	1.495	1.297	1.128	0.983	0.852	0.735

(continued)

TABLE A-63 (continued)

Page 4 of 7

Reading No.	16.	17.	18.	19.	20.	21.
T, min	101681.000	101705.000	101745.000	101801.000	101834.000	101864.000
W, lb	2890.800	2890.000	2889.300	2887.600	2887.200	2886.600
ΔT, h	0.633	0.400	0.667	0.933	0.550	0.500
ΔW, lb	0.100	-0.800	-0.700	-1.700	-0.400	-0.600
ΣΔT, h	7.483	7.883	8.550	9.483	10.033	10.533
ΣΔW, lb	-5.200	-6.000	-6.700	-8.400	-8.800	-9.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	0.158	-2.000	-1.050	-1.821	-0.727	-1.200
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-0.695	-0.761	-0.784	-0.886	-0.877	-0.892
$\bar{X}$, lb/h	0.640	0.553	0.474	0.398	0.331	0.270

(continued)

TABLE A-63 (continued) Page 5 of 7

Reading No.	22.	23.	24.	25.	26.	27.
T, min	101926.000	101952.000	102011.000	102043.000	102069.000	102109.000
W, lb	2885.400	2884.600	2884.300	2884.000	2883.400	2881.200
ΔT, h	1.033	0.433	0.983	0.533	0.433	0.667
ΔW, lb	-1.200	-0.800	-0.300	-0.300	-0.600	-2.200
$\Sigma\Delta T$, h	11.567	12.000	12.983	13.517	13.950	14.617
$\Sigma\Delta W$, lb	-10.600	-11.400	-11.700	-12.000	-12.600	-14.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.161	-1.846	-0.305	-0.563	-1.385	-3.300
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-0.916	-0.950	-0.901	-0.888	-0.903	-1.013
$\bar{X}$, lb/h	0.214	0.161	0.115	0.073	0.034	-0.007

(continued)

TABLE A-63 (continued)

Reading No.	28.	29.	30.	31.	32.	33.
T, min	102133.000	102163.000	102196.000	102227.000	102251.000	102290.000
W, lb	2881.500	2880.900	2880.400	2879.400	2878.800	2878.300
ΔT, h	0.400	0.500	0.550	0.517	0.400	0.650
ΔW, lb	0.300	-0.600	-0.500	-1.000	-0.600	-0.500
ΣΔT, h	15.017	15.517	16.067	16.583	16.983	17.633
ΣΔW, lb	-14.500	-15.100	-15.600	-16.600	-17.200	-17.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	0.750	-1.200	-0.909	-1.935	-1.500	-0.769
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-0.966	-0.973	-0.971	-1.001	-1.013	-1.004
$\bar{X}$, lb/h	-0.042	-0.075	-0.106	-0.136	-0.164	-0.191

(continued)

TABLE A-63 (continued) Page 7 of 7

Reading No.	34.	35.	36.			
T, min	102330.000	102367.000	102452.000			
W, lb	2877.600	2876.700	2876.700			
ΔT, h	0.667	0.617	1.417			
ΔW, lb	-0.700	-0.900	0.000			
$\Sigma\Delta T$, h	18.300	18.917	20.333			
$\Sigma\Delta W$, lb	-18.400	-19.300	-19.300			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.050	-1.459	0.000			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.005	-1.020	-0.949			
$\bar{X}$, lb/h	-0.215	-0.239	-0.259			

n 35

Slope -1.141

Intercept 2.666

S_{yx} 1.297

S_x 5.906

S_a 0.038

S_b 0.108

S_c 2.891

$t_{\alpha/2}$ 2.034

r -0.985

Confidence interval

-1.141 ± 0.077

TABLE A-64 SUMMARY OF DATA FROM TEST NO. 36 Page 1 of 7

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC ____ A 70 %
Inlet air x Exhaust air x V 16 ft/min
Other

Date 2/4/79
Ambient air
Temperature ____ °F
Pressure ____ in. Hg
Humidity ____ %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	104104.000	104134.000	104159.000	104193.000	104230.000	104257.000
W, lb	3514.200	3512.700	3511.800	3509.500	3507.000	3505.500
ΔT, h		0.500	0.417	0.567	0.617	0.450
ΔW, lb		1.500	0.900	2.300	2.500	1.500
$\Sigma \Delta T$, h		0.500	0.917	1.483	2.100	2.550
$\Sigma \Delta W$, lb		1.500	2.400	4.700	7.200	8.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		3.000	2.160	4.059	4.054	3.333
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h		3.000	2.618	3.169	3.429	3.412
$\bar{X}$, lb/h		3.000	2.809	2.929	3.054	3.125

TABLE A-64 (continued) Page 2 of 7

Reading No.	7.	8.	9.	10.	11.	12.
T, min	104278.000	104311.000	104341.000	104373.000	104400.000	104436.000
W, lb	3504.000	3502.200	3501.400	3499.200	3497.600	3495.100
ΔT, h	0.350	0.550	0.500	0.533	0.450	0.600
ΔW, lb	1.500	1.800	0.800	2.200	1.600	2.500
$\Sigma\Delta T$, h	2.900	3.450	3.950	4.483	4.933	5.533
$\Sigma\Delta W$, lb	10.200	12.000	12.800	15.000	16.600	19.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	4.286	3.273	1.600	4.125	3.556	4.167
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	3.517	3.478	3.241	3.346	3.365	3.452
$\bar{X}$, lb/h	3.191	3.232	3.233	3.245	3.257	3.275

(continued)

TABLE A-64 (continued) **Page 3 of 7**

Reading No.	13.	14.	15.	16.	17.	18.
T, min	104473.000	104495.000	104520.000	104555.000	104583.000	104617.000
W, lb	3492.400	3491.400	3490.600	3488.100	3486.900	3484.500
ΔT, h	0.617	0.367	0.417	0.583	0.467	0.567
ΔW, lb	2.700	1.000	0.800	2.500	1.200	2.400
ΣΔT, h	6.150	6.517	6.933	7.517	7.983	8.550
ΣΔW, lb	21.800	22.800	23.600	26.100	27.300	29.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	4.378	2.727	1.920	4.286	2.571	4.235
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	3.545	3.499	3.404	3.472	3.420	3.474
$\bar{X}$, lb/h	3.298	3.313	3.319	3.330	3.335	3.343

(continued)

TABLE A-64 (continued) Page 4 of 7

Reading No.	19.	20.	21.	22.	23.	24.
T, min	104647.000	104672.000	104704.000	104731.000	104770.000	104796.000
W, lb	3483.400	3482.000	3480.000	3478.500	3476.200	3474.500
ΔT, h	0.500	0.417	0.533	0.450	0.650	0.433
ΔW, lb	1.100	1.400	2.000	1.500	2.300	1.700
$\Sigma\Delta T$, h	9.050	9.467	10.000	10.450	11.100	11.533
$\Sigma\Delta W$, lb	30.800	32.200	34.200	35.700	38.000	39.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	2.200	3.360	3.750	3.333	3.538	3.923
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	3.403	3.401	3.420	3.416	3.423	3.442
$\bar{X}$, lb/h	3.347	3.350	3.353	3.356	3.359	3.363

(continued)

TABLE A-64 (continued)

Page 5 of 7

Reading No.	25.	26.	27.	28.	29.	30.
T, min	104830.000	104863.000	104895.000	104921.000	104953.000	104985.000
W, lb	3472.250	3470.500	3468.750	3467.750	3465.850	3463.900
ΔT, h	0.567	0.550	0.533	0.433	0.533	0.533
ΔW, lb	2.250	1.750	1.750	1.000	1.900	1.950
ΣΔT, h	12.100	12.650	13.183	13.617	14.150	14.683
ΣΔW, lb	41.950	43.700	45.450	46.450	48.350	50.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	3.971	3.182	3.281	2.308	3.563	3.656
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	3.467	3.455	3.448	3.411	3.417	3.426
$\bar{X}$, lb/h	3.367	3.371	3.374	3.375	3.377	3.378

(continued)

TABLE A-64 (continued) Page 6 of 7

Reading No.	31.	32.	33.	34.	35.	36.
T, min	105011.000	105037.000	105070.000	105103.000	105136.000	105168.000
W, lb	3462.500	3461.100	3459.000	3456.750	3455.250	3453.400
ΔT, h	0.433	0.433	0.550	0.550	0.550	0.533
ΔW, lb	1.400	1.400	2.100	2.250	1.500	1.850
ΣΔT, h	15.117	15.550	16.100	16.650	17.200	17.733
ΣΔW, lb	51.700	53.100	55.200	57.450	58.950	60.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	3.231	3.231	3.818	4.091	2.727	3.469
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	3.420	3.415	3.429	3.450	3.427	3.429
$\bar{X}$, lb/h	3.380	3.381	3.382	3.384	3.386	3.387

(continued)

TABLE A-64 (continued)

Page 7 of 7

Reading No.	37.					
T, min	105194.000					
W, lb	3451.750					
ΔT, h	0.433					
ΔW, lb	1.650					
ΣΔT, h	18.167					
ΣΔW, lb	62.450					
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	3.808					
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	3.438					
$\bar{X}$, lb/h	3.388					

n 36

Slope 3.443

Intercept -0.151

S_{yx} 0.311

S_x 5.334

S_a 0.010

S_b 0.115

S_c 0.725

$t_{\alpha/2}$ 2.032

r 1.000

Confidence interval

3.443 ± 0.0204

TABLE A-65 SUMMARY OF DATA FROM TEST NO. 37 **Page** 1 **of** 5

Degreaser A, operating

Solvent: Methylene chloride

FB 50 % PC x SC - A 50 %
Inlet air - Exhaust air x V 8 ft/min
Other

Date 4/1/79
Ambient air
Temperature 67 °F
Pressure 29.35 in. Hg
Humidity 62 %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	184557.000	184636.000	184679.000	184728.000	184789.000	184856.000
W, lb	3504.200	3502.500	3501.400	3499.500	3498.000	3495.000
ΔT, h		1.317	0.717	0.817	1.017	1.117
ΔW, lb		-1.700	-1.100	-1.900	-1.500	-3.000
$\Sigma\Delta T$, h		1.317	2.033	2.850	3.867	4.983
$\Sigma\Delta W$, lb		-1.700	-2.800	-4.700	-6.200	-9.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-1.291	-1.535	-2.327	-1.475	-2.687
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-1.291	-1.377	-1.649	-1.603	-1.846
$\bar{X}$, lb/h		-1.291	-1.334	-1.439	-1.480	-1.553

TABLE A-65 (continued)

Page 2 of 5

Reading No.	7.	8.	9.	10.	11.	12.
T, min	184911.000	184973.000	185031.000	185089.000	185153.000	185212.000
W, lb	3494.500	3493.500	3492.000	3489.900	3488.000	3486.400
ΔT, h	0.917	1.033	0.967	0.967	1.067	0.983
ΔW, lb	-0.500	-1.000	-1.500	-2.100	-1.900	-1.600
ΣΔT, h	5.900	6.933	7.900	8.867	9.933	10.917
ΣΔW, lb	-9.700	-10.700	-12.200	-14.300	-16.200	-17.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.545	-0.968	-1.552	-2.172	-1.781	-1.627
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.644	-1.543	-1.544	-1.613	-1.631	-1.631
$\bar{X}$, lb/h	-1.568	-1.565	-1.562	-1.568	-1.574	-1.579

(continued)

TABLE A-65 (continued)

Page 3 of 5

Reading No.	13.	14.	15.	16.	17.	18.
T, min	185271.000	185330.000	185388.000	185447.000	185505.000	185568.000
W, lb	3484.800	3483.100	3481.400	3479.600	3475.200	3473.000
ΔT, h	0.983	0.983	0.967	0.983	0.967	1.050
ΔW, lb	-1.600	-1.700	-1.700	-1.800	-4.400	-2.200
$\Sigma\Delta T$, h	11.900	12.883	13.850	14.833	15.800	16.850
$\Sigma\Delta W$, lb	-19.400	-21.100	-22.800	-24.600	-29.000	-31.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.627	-1.729	-1.759	-1.831	-4.552	-2.095
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.630	-1.638	-1.646	-1.658	-1.835	-1.852
$\bar{X}$, lb/h	-1.584	-1.588	-1.592	-1.596	-1.611	-1.625

(continued)

TABLE A-65 (continued) Page 4 of 5

Reading No.	19.	20.	21.	22.	23.	24.
T, min	185627.000	185684.000	185744.000	185808.000	185874.000	185933.000
W, lb	3474.000	3470.500	3471.000	3469.500	3467.900	3466.400
ΔT, h	0.983	0.950	1.000	1.067	1.100	0.983
ΔW, lb	1.000	-3.500	0.500	-1.500	-1.600	-1.500
$\Sigma\Delta T$, h	17.833	18.783	19.783	20.850	21.950	22.933
$\Sigma\Delta W$, lb	-30.200	-33.700	-33.200	-34.700	-36.300	-37.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	1.017	-3.684	0.500	-1.406	-1.455	-1.525
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.693	-1.794	-1.678	-1.664	-1.654	-1.648
$\bar{X}$, lb/h	-1.629	-1.638	-1.640	-1.641	-1.642	-1.642

(continued)

TABLE A-65 (continued)

Page 5 of 5

Reading No.	25.					
T, min	185988.000	186023.000	186112.000			
W, lb	3464.900	3465.400	3465.300			
ΔT, h	0.917					
ΔW, lb	-1.500					
$\Sigma\Delta T$, h	23.850					
$\Sigma\Delta W$, lb	-39.300					
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.636					
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.648					
$\bar{X}$, lb/h	-1.642					

n	24	S_{yx}	1.063	$t_{\alpha/2}$	2.074
Slope	-1.71	S_x	7.015	r	-0.999
Intercept	0.427	S_a	0.032	Confidence interval	
		S_b	0.178	1.71 ± 0.066	
		S_c	1.110		

TABLE A-66 SUMMARY OF DATA FROM TEST NO. 37

Page 1 of 5

Degreaser B, operating

Solvent: Methylene chloride

FB 50 % PC x SC - A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 4/1/79
Ambient air
Temperature 67 °F
Pressure 29.35 in. Hg
Humidity 62 %

Reading No.				1.	2.	3.
T, min	184503.000	184523.000	184532.000	184561.000	184640.000	184683.000
W, lb	3004.500	3006.500	3003.100	3001.800	2999.900	2997.300
ΔT, h					1.317	0.717
ΔW, lb					-1.900	-2.600
$\Sigma\Delta T$, h					1.317	2.033
$\Sigma\Delta W$, lb					-1.900	-4.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.443	-3.628
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.443	-2.213
$\bar{X}$, lb/h					-1.443	-1.828

TABLE A-66 (continued) Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	184731.000	184791.000	184859.000	184913.000	184973.000	185031.000
W, lb	2996.300	2993.500	2990.600	2988.400	2987.400	2985.100
ΔT, h	0.800	1.000	1.133	0.900	1.000	0.967
ΔW, lb	-1.000	-2.800	-2.900	-2.200	-1.000	-2.300
$\Sigma\Delta T$, h	2.833	3.833	4.967	5.867	6.867	7.833
$\Sigma\Delta W$, lb	-5.500	-8.300	-11.200	-13.400	-14.400	-16.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.250	-2.800	-2.559	-2.444	-1.000	-2.379
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.941	-2.165	-2.255	-2.284	-2.097	-2.132
$\bar{X}$, lb/h	-1.866	-1.941	-2.004	-2.050	-2.057	-2.066

(continued)

TABLE A-66 (continued) Page 3 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	185089.000	185153.000	185212.000	185271.000	185330.000	185388.000
W, lb	2982.400	2980.000	2977.700	2976.300	2973.100	2970.100
ΔT, h	0.967	1.067	0.983	0.983	0.983	0.967
ΔW, lb	-2.700	-2.400	-2.300	-1.400	-3.200	-3.000
$\Sigma\Delta T$, h	8.800	9.867	10.850	11.833	12.817	13.783
$\Sigma\Delta W$, lb	-19.400	-21.800	-24.100	-25.500	-28.700	-31.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.793	-2.250	-2.339	-1.424	-3.254	-3.103
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.205	-2.209	-2.221	-2.155	-2.239	-2.300
$\bar{X}$, lb/h	-2.082	-2.094	-2.106	-2.110	-2.120	-2.133

(continued)

TABLE A-66 (continued) Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	185447.000	185505.000	185568.000	185627.000	185684.000	185744.000
W, lb	2968.400	2965.800	2963.000	2960.800	2958.500	2955.500
ΔT, h	0.983	0.967	1.050	0.983	0.950	1.000
ΔW, lb	-1.700	-2.600	-2.800	-2.200	-2.300	-3.000
$\Sigma\Delta T$, h	14.767	15.733	16.783	17.767	18.717	19.717
$\Sigma\Delta W$, lb	-33.400	-36.000	-38.800	-41.000	-43.300	-46.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.729	-2.690	-2.667	-2.237	-2.421	-3.000
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.262	-2.288	-2.312	-2.308	-2.313	-2.348
$\bar{X}$, lb/h	-2.141	-2.151	-2.160	-2.168	-2.176	-2.185

(continued)

TABLE A-66 (continued) **Page 5 of 5**

Reading No.	22.	23.	24.	25.		
T, min	185808.000	185874.000	185933.000	185988.000	186023.000	186189.000
W, lb	2954.500	2952.000	2949.900	2947.700	2948.300	2948.000
ΔT, h	1.067	1.100	0.983	0.917		
ΔW, lb	-1.000	-2.500	-2.100	-2.200		
$\Sigma\Delta T$, h	20.783	21.883	22.867	23.783		
$\Sigma\Delta W$, lb	-47.300	-49.800	-51.900	-54.100		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.937	-2.273	-2.136	-2.400		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.276	-2.276	-2.270	-2.275		
$\bar{X}$, lb/h	-2.189	-2.193	-2.196	-2.199		

n	24	S_{yx}	0.574	$t_{\alpha/2}$	2.074
Slope	-2.32	S_x	6.998	r	-1.000
Intercept	0.914	S_a	0.017	**Confidence interval**	
		S_b	0.177	2.32 ± 0.035	
		S_c	0.698		

TABLE A-67 SUMMARY OF DATA FROM TEST NO. 38

Page 1 of 5

Degreaser A, operating

Solvent: Methylene chloride

FB 50 % PC x SC - A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 4/2/79
Ambient air
Temperature 67 °F
Pressure 29.62 in. Hg
Humidity 50 %

Reading No.				1.	2.	3.
T, min	186278.000	186294.000	186300.000	186330.000	186404.000	186468.000
W, lb	3500.900	3499.000	3497.600	3496.100	3495.000	3492.400
ΔT, h					1.233	1.067
ΔW, lb					-1.100	-2.600
ΣΔT, h					1.233	2.300
ΣΔW, lb					-1.100	-3.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-0.892	-2.437
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-0.892	-1.609
$\bar{X}$, lb/h					-0.892	-1.250

Page 2 of 5

TABLE A-67 (continued)

Reading No.	4.	5.	6.	7.	8.	9.
T, min	186527.000	186594.000	186650.000	186713.000	186768.000	186829.000
W, lb	3490.100	3488.000	3486.300	3484.500	3479.500	3479.500
ΔT, h	0.983	1.117	0.933	1.050	0.917	1.017
ΔW, lb	-2.300	-2.100	-1.700	-1.800	-5.000	0.000
ΣΔT, h	3.283	4.400	5.333	6.383	7.300	8.317
ΣΔW, lb	-6.000	-8.100	-9.800	-11.600	-16.600	-16.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.339	-1.881	-1.821	-1.714	-5.455	0.000
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.827	-1.841	-1.830	-1.817	-2.274	-1.996
$\bar{X}$, lb/h	-1.443	-1.542	-1.601	-1.637	-1.720	-1.762

(continued)

TABLE A-67 (continued)

Page 3 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	186885.000	186944.000	187005.000	187062.000	187125.000	187183.000
W, lb	3477.800	3476.000	3473.800	3472.300	3470.200	3468.300
ΔT, h	0.933	0.983	1.017	0.950	1.050	0.967
ΔW, lb	-1.700	-1.800	-2.200	-1.500	-2.100	-1.900
$\Sigma\Delta T$, h	9.250	10.233	11.250	12.200	13.250	14.217
$\Sigma\Delta W$, lb	-18.300	-20.100	-22.300	-23.800	-25.900	-27.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.821	-1.831	-2.164	-1.579	-2.000	-1.966
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.978	-1.964	-1.982	-1.951	-1.955	-1.955
$\bar{X}$, lb/h	-1.786	-1.804	-1.820	-1.831	-1.840	-1.849

(continued)

TABLE A-67 (continued)

Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	187244.000	187303.000	187364.000	187429.000	187488.000	187560.000
W, lb	3466.200	3464.800	3462.800	3460.800	3459.000	3456.800
ΔT, h	1.017	0.983	1.017	1.083	0.983	1.200
ΔW, lb	-2.100	-1.400	-2.000	-2.000	-1.800	-2.200
ΣΔT, h	15.233	16.217	17.233	18.317	19.300	20.500
ΣΔW, lb	-29.900	-31.300	-33.300	-35.300	-37.100	-39.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.066	-1.424	-1.967	-1.846	-1.831	-1.833
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.963	-1.930	-1.932	-1.927	-1.922	-1.917
$\bar{X}$, lb/h	-1.856	-1.861	-1.865	-1.868	-1.871	-1.874

(continued)

TABLE A-67 (continued)

Page 5 of 5

Reading No.	22.	23.	24.	25.		
T, min	187604.000	187670.000	187721.000	187778.000	187814.000	187900.000
W, lb	3455.100	3453.600	3451.400	3449.800	3450.000	3452.100
ΔT, h	0.733	1.100	0.850	0.950		
ΔW, lb	-1.700	-1.500	-2.200	-1.600		
$\Sigma\Delta T$, h	21.233	22.333	23.183	24.133		
$\Sigma\Delta W$, lb	-41.000	-42.500	-44.700	-46.300		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.318	-1.364	-2.588	-1.684		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.931	-1.903	-1.928	-1.919		
$\bar{X}$, lb/h	-1.876	-1.878	-1.880	-1.881		

n 24

Slope -1.94

Intercept 0.055

S_{yx} 0.724

S_x 7.053

S_a 0.021

S_b 0.184

S_c 0.913

$t_{\alpha/2}$ 2.074

r -1.000

Confidence interval

1.94 ± 0.044

TABLE A-68 SUMMARY OF DATA FROM TEST NO. 38

Page 1 of 5

Degreaser B, operating

Solvent: Methylene chloride

FB 50 % PC x SC x A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 4/2/79
Ambient air
Temperature 67 °F
Pressure 29.62 in. Hg
Humidity 50 %

Reading No.				1.	2.	3.
T, min	186278.000	186291.000	186297.000	186330.000	186404.000	186468.000
W, lb	3045.000	3038.300	3036.200	3036.000	3034.600	3031.700
ΔT, h					1.233	1.067
ΔW, lb					-1.400	-2.900
ΣΔT, h					1.233	2.300
ΣΔW, lb					-1.400	-4.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.135	-2.719
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.135	-1.870
$\bar{X}$, lb/h					-1.135	-1.502

TABLE A-68 (continued) Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	186527.000	186594.000	186650.000	186713.000	186768.000	186829.000
W, lb	3029.900	3027.600	3026.300	3024.000	3022.600	3021.700
ΔT, h	0.983	1.117	0.933	1.050	0.917	1.017
ΔW, lb	-1.800	-2.300	-1.300	-2.300	-1.400	-0.900
$\Sigma\Delta T$, h	3.283	4.400	5.333	6.383	7.300	8.317
$\Sigma\Delta W$, lb	-6.100	-8.400	-9.700	-12.000	-13.400	-14.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.831	-2.060	-1.393	-2.190	-1.527	-0.885
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.858	-1.909	-1.819	-1.880	-1.836	-1.719
$\bar{X}$, lb/h	-1.621	-1.693	-1.718	-1.745	-1.758	-1.753

(continued)

TABLE A-68 (continued)

Reading No.	10.	11.	12.			
T, min	186885.000	186944.000	187005.000	187062.000	187125.000	187183.000
W, lb	3018.000	3016.500	3014.000	3012.700	3010.000	3008.000
ΔT, h	0.933	0.983	1.017	0.950	1.050	0.967
ΔW, lb	-3.700	-1.500	-2.500	-1.300	-2.700	-2.000
$\Sigma\Delta T$, h	9.250	10.233	11.250	12.200	13.250	14.217
$\Sigma\Delta W$, lb	-18.000	-19.500	-22.000	-23.300	-26.000	-28.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.964	-1.525	-2.459	-1.368	-2.571	-2.069
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.946	-1.906	-1.956	-1.910	-1.962	-1.970
$\bar{X}$, lb/h	-1.775	-1.788	-1.803	-1.812	-1.823	-1.834

(continued)

TABLE A-6B (continued) Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	187244.000	187303.000	187364.000	187429.000	187488.000	187560.000
W, lb	3006.000	3004.500	3002.100	3000.300	2997.600	2995.300
ΔT, h	1.017	0.983	1.017	1.083	0.983	1.200
ΔW, lb	-2.000	-1.500	-2.400	-1.800	-2.700	-2.300
$\Sigma\Delta T$, h	15.233	16.217	17.233	18.317	19.300	20.500
$\Sigma\Delta W$, lb	-30.000	-31.500	-33.900	-35.700	-38.400	-40.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.967	-1.525	-2.361	-1.662	-2.746	-1.917
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.969	-1.942	-1.967	-1.949	-1.990	-1.985
$\bar{X}$, lb/h	-1.843	-1.849	-1.856	-1.861	-1.868	-1.874

(continued)

TABLE A-68 (continued) Page 5 of 5

Reading No.	22.	23.	24.	25.		
T, min	187604.000	187670.000	187721.000	187778.000	187814.000	187951.000
W, lb	2994.100	2991.400	2990.000	2989.700	2988.100	2989.000
ΔT, h	0.733	1.100	0.850	0.950		
ΔW, lb	-1.200	-2.700	-1.400	-0.300		
ΣΔT, h	21.233	22.333	23.183	24.133		
ΣΔW, lb	-41.900	-44.600	-46.000	-46.300		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.636	-2.455	-1.647	-0.316		
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-1.973	-1.997	-1.984	-1.919		
$\bar{X}$, lb/h	-1.879	-1.884	-1.888	-1.890		

n 24

Slope -1.96

Intercept 0.854

S_{yx} 0.541

S_x 7.053

S_a 0.016

S_b 0.184

S_c 0.733

$t_{\alpha/2}$ 2.074

r -1.000

Confidence interval

1.96 ± 0.033

TABLE A-69 SUMMARY OF DATA FROM TEST NO. 39 Page 1 of 5

Degreaser A, operating

Solvent: Methylene chloride

FB 50 % PC x SC - A 70 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 4/4/79
Ambient air
Temperature 69 °F
Pressure 29.45 in. Hg
Humidity 39 %

Reading No.				1.	2.	3.
T, min	188167.000	188173.000	188182.000	188212.000	188273.000	188323.000
W, lb	3449.500	3449.100	3447.500	3444.100	3440.300	3438.000
ΔT, h					1.017	0.833
ΔW, lb					-3.800	-2.300
ΣΔT, h					1.017	1.850
ΣΔW, lb					-3.800	-6.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-3.738	-2.760
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-3.738	-3.297
$\bar{X}$, lb/h					-3.738	-3.518

TABLE A-69 (continued)

Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	188384.000	188445.000	188507.000	188562.000	188628.000	188685.000
W, lb	3435.500	3433.200	3430.100	3424.500	3419.500	3420.500
ΔT, h	1.017	1.017	1.033	0.917	1.100	0.950
ΔW, lb	-2.500	-2.300	-3.100	-5.600	-5.000	1.000
$\Sigma\Delta T$, h	2.867	3.883	4.917	5.833	6.933	7.883
$\Sigma\Delta W$, lb	-8.600	-10.900	-14.000	-19.600	-24.600	-23.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.459	-2.262	-3.000	-6.109	-4.545	1.053
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-3.000	-2.807	-2.847	-3.360	-3.548	-2.994
$\bar{X}$, lb/h	-3.345	-3.210	-3.138	-3.175	-3.228	-3.199

(continued)

TABLE A-69 (continued)

Page 3 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	188749.000	188813.000	188865.000	188923.000	188988.000	189046.000
W, lb	3417.200	3412.700	3411.000	3408.700	3406.700	3403.100
ΔT, h	1.067	1.067	0.867	0.967	1.083	0.967
ΔW, lb	-3.300	-4.500	-1.700	-2.300	-2.000	-3.600
$\Sigma\Delta T$, h	8.950	10.017	10.883	11.850	12.933	13.900
$\Sigma\Delta W$, lb	-26.900	-31.400	-33.100	-35.400	-37.400	-41.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.094	-4.219	-1.962	-2.379	-1.846	-3.724
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-3.006	-3.135	-3.041	-2.987	-2.892	-2.950
$\bar{X}$, lb/h	-3.177	-3.173	-3.161	-3.147	-3.127	-3.114

(continued)

TABLE A-69 (continued) Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	189105.000	189171.000	189225.000	189288.000	189347.000	189407.000
W, lb	3400.600	3398.400	3396.100	3394.000	3391.600	3387.500
ΔT, h	0.983	1.100	0.900	1.050	0.983	1.000
ΔW, lb	-2.500	-2.200	-2.300	-2.100	-2.400	-4.100
$\Sigma\Delta T$, h	14.883	15.983	16.883	17.933	18.917	19.917
$\Sigma\Delta W$, lb	-43.500	-45.700	-48.000	-50.100	-52.500	-56.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.542	-2.000	-2.556	-2.000	-2.441	-4.100
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.923	-2.859	-2.843	-2.794	-2.775	-2.842
$\bar{X}$, lb/h	-3.102	-3.086	-3.072	-3.057	-3.042	-3.032

(continued)

TABLE A-69 (continued)

Page 5 of 5

Reading No.	22.	23.	24.	25.		
T, min	189465.000	189531.000	189590.000	189657.000	189680.000	189760.000
W, lb	3387.700	3384.900	3382.400	3381.800	3382.100	3383.500
ΔT, h	0.967	1.100	0.983	1.117		
ΔW, lb	0.200	-2.800	-2.500	-0.600		
$\Sigma\Delta T$, h	20.883	21.983	22.967	24.083		
$\Sigma\Delta W$, lb	-56.400	-59.200	-61.700	-62.300		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	0.207	-2.545	-2.542	-0.537		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.701	-2.693	-2.687	-2.587		
$\bar{X}$, lb/h	-3.016	-3.001	-2.988	-2.971		

n 24

Slope -2.59

Intercept -3.038

S_{yx} 1.786

S_x 7.093

S_a 0.053

S_b 0.175

S_c 1.494

$t_{\alpha/2}$ 2.074

r -0.998

Confidence interval

2.59 ± 0.110

TABLE A-70 SUMMARY OF DATA FROM TEST NO. 39

Page 1 of 5

Degreaser B, operating

Solvent: Methylene chloride

FB 50 %
Inlet air x
Other

PC x
Exhaust air x

SC -

A 70 %
V 8 ft/min

Date 4/4/79
Ambient air
Temperature 69 °F
Pressure 29.45 in. Hg
Humidity 39 %

Reading No.				1.	2.	3.
T, min	188167.000	188173.000	188177.000	188212.000	188273.000	188323.000
W, lb	2983.500	2982.300	2978.800	2978.000	2973.500	2970.200
ΔT, h					1.017	0.833
ΔW, lb					-4.500	-3.300
$\Sigma\Delta T$, h					1.017	1.850
$\Sigma\Delta W$, lb					-4.500	-7.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-4.426	-3.960
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-4.426	-4.216
$\bar{X}$, lb/h					-4.426	-4.321

TABLE A-70 (continued) Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	188384.000	188445.000	188507.000	188562.000	188628.000	188685.000
W, lb	2967.000	2962.800	2959.500	2955.700	2952.000	2948.700
ΔT, h	1.017	1.017	1.033	0.917	1.100	0.950
ΔW, lb	-3.200	-4.200	-3.300	-3.800	-3.700	-3.300
ΣΔT, h	2.867	3.883	4.917	5.833	6.933	7.883
ΣΔW, lb	-11.000	-15.200	-18.500	-22.300	-26.000	-29.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.148	-4.131	-3.194	-4.145	-3.364	-3.474
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-3.837	-3.914	-3.763	-3.823	-3.750	-3.717
$\bar{X}$, lb/h	-4.160	-4.098	-4.031	-3.997	-3.961	-3.931

(continued)

TABLE A-70 (continued) Page 3 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	188749.000	188813.000	188865.000	188923.000	188988.000	189046.000
W, lb	2944.900	2941.800	2938.300	2934.900	2931.200	2927.900
ΔT, h	1.067	1.067	0.867	0.967	1.083	0.967
ΔW, lb	-3.800	-3.100	-3.500	-3.400	-3.700	-3.300
ΣΔT, h	8.950	10.017	10.883	11.850	12.933	13.900
ΣΔW, lb	-33.100	-36.200	-39.700	-43.100	-46.800	-50.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.563	-2.906	-4.038	-3.517	-3.415	-3.414
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-3.698	-3.614	-3.648	-3.637	-3.619	-3.604
$\bar{X}$, lb/h	-3.905	-3.876	-3.855	-3.837	-3.820	-3.805

(continued)

TABLE A-70 (continued) Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	189105.000	189171.000	189225.000	189288.000	189347.000	189407.000
W, lb	2924.600	2920.400	2917.500	2914.400	2910.800	2907.500
ΔT, h	0.983	1.100	0.900	1.050	0.983	1.000
ΔW, lb	-3.300	-4.200	-2.900	-3.100	-3.600	-3.300
$\Sigma\Delta T$, h	14.883	15.983	16.883	17.933	18.917	19.917
$\Sigma\Delta W$, lb	-53.400	-57.600	-60.500	-63.600	-67.200	-70.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.356	-3.818	-3.222	-2.952	-3.661	-3.300
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-3.588	-3.604	-3.583	-3.546	-3.552	-3.540
$\bar{X}$, lb/h	-3.790	-3.779	-3.767	-3.755	-3.744	-3.734

(continued)

TABLE A-70 (continued) **Page 5 of 5**

Reading No.	22.	23.	24.	25.		
T, min	189465.000	189531.000	189590.000	189657.000	189680.000	189863.000
W, lb	2903.800	2898.800	2894.600	2890.000	2890.000	2890.600
ΔT, h	0.967	1.100	0.983	1.117		
ΔW, lb	-3.700	-5.000	-4.200	-4.600		
$\Sigma\Delta T$, h	20.883	21.983	22.967	24.083		
$\Sigma\Delta W$, lb	-74.200	-79.200	-83.400	-88.000		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.828	-4.545	-4.271	-4.119		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-3.553	-3.603	-3.631	-3.654		
$\bar{X}$, lb/h	-3.725	-3.720	-3.716	-3.713		

n	24	S_{yx}	0.629	$t_{\alpha/2}$	2.074
Slope	-3.55	S_x	7.093	r	-1.000
Intercept	-1.120	S_a	0.018	**Confidence interval**	
		S_b	0.175	3.55 ± 0.037	
		S_c	0.463		

TABLE A-71 SUMMARY OF DATA FROM TEST NO. 40

Page 1 of 5

Degreaser A, operating

Solvent: Methylene chloride

FB 50 % PC x SC x A 70 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 4/5/79
Ambient air
Temperature 69 °F
Pressure 29.45 in. Hg
Humidity 40 %

Reading No.			1.	2.	3.	4.
T, min	190141.000	190147.000	190170.000	190248.000	190307.000	190366.000
W, lb	3512.800	3511.000	3508.400	3505.000	3502.700	3499.700
ΔT, h				1.300	0.983	0.983
ΔW, lb				-3.400	-2.300	-3.000
$\Sigma\Delta T$, h				1.300	2.283	3.267
$\Sigma\Delta W$, lb				-3.400	-5.700	-8.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h				-2.615	-2.339	-3.051
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h				-2.615	-2.496	-2.663
$\bar{X}$, lb/h				-2.615	-2.556	-2.592

TABLE A-71 (continued)

Reading No.	5.	6.	7.	8.	9.	10.
T, min	190430.000	190490.000	190554.000	190606.000	190673.000	190731.000
W, lb	3497.100	3494.600	3492.000	3490.000	3487.900	3484.300
ΔT, h	1.067	1.000	1.067	0.867	1.117	0.967
ΔW, lb	-2.600	-2.500	-2.600	-2.000	-2.100	-3.600
$\Sigma\Delta T$, h	4.333	5.333	6.400	7.267	8.383	9.350
$\Sigma\Delta W$, lb	-11.300	-13.800	-16.400	-18.400	-20.500	-24.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.437	-2.500	-2.437	-2.308	-1.881	-3.724
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.608	-2.588	-2.563	-2.532	-2.445	-2.578
$\bar{X}$, lb/h	-2.596	-2.594	-2.589	-2.581	-2.564	-2.565

(continued)

TABLE A-71 (continued)

Reading No.	11.	12.	13.	14.	15.	16.
T, min	190790.000	190848.000	190907.000	190967.000	191026.000	191088.000
W, lb	3483.000	3479.100	3477.500	3476.500	3473.100	3471.600
ΔT, h	0.983	0.967	0.983	1.000	0.983	1.033
ΔW, lb	-1.300	-3.900	-1.600	-1.000	-3.400	-1.500
ΣΔT, h	10.333	11.300	12.283	13.283	14.267	15.300
ΣΔW, lb	-25.400	-29.300	-30.900	-31.900	-35.300	-36.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.322	-4.034	-1.627	-1.000	-3.458	-1.452
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-2.458	-2.593	-2.516	-2.402	-2.474	-2.405
$\bar{X}$, lb/h	-2.555	-2.558	-2.555	-2.543	-2.538	-2.529

(continued)

TABLE A-71 (continued)

Reading No.	17.	18.	19.	20.	21.	22.
T, min	191146.000	191204.000	191266.000	191325.000	191385.000	191445.000
W, lb	3468.800	3466.800	3464.000	3462.500	3459.000	3456.500
ΔT, h	0.967	0.967	1.033	0.983	1.000	1.000
ΔW, lb	-2.800	-2.000	-2.800	-1.500	-3.500	-2.500
$\Sigma\Delta T$, h	16.267	17.233	18.267	19.250	20.250	21.250
$\Sigma\Delta W$, lb	-39.600	-41.600	-44.400	-45.900	-49.400	-51.900
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.897	-2.069	-2.710	-1.525	-3.500	-2.500
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.434	-2.414	-2.431	-2.384	-2.440	-2.442
$\bar{X}$, lb/h	-2.523	-2.517	-2.512	-2.505	-2.502	-2.499

(continued)

TABLE A-71 (continued) Page 5 of 5

Reading No.	23.	24.	25.			
T, min	191504.000	191572.000	191625.000	191718.000	190108.000	
W, lb	3454.900	3452.500	3450.000	3451.900	3514.500	
ΔT, h	0.983	1.133	0.883			
ΔW, lb	-1.600	-2.400	-2.500			
ΣΔT, h	22.233	23.367	24.250			
ΣΔW, lb	-53.500	-55.900	-58.400			
$\left(\frac{\Delta W}{\Delta T}\right)$, **lb/h**	-1.627	-2.118	-2.830			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, **lb/h**	-2.406	-2.392	-2.408			
$\bar{X}$, **lb/h**	-2.495	-2.490	-2.487			

n 24

Slope -2.372

Intercept -1.012

S_{yx} 0.569

S_x 7.050

S_a 0.017

S_b 0.185

S_c 0.786

$t_{\alpha/2}$ 2.074

r -1.000

Confidence interval

2.372 ± 0.035

TABLE A-72 SUMMARY OF DATA FROM TEST NO. 40

Page 1 of 5

Degreaser B, operating

Solvent: Methylene chloride

FB 50 % PC x SC x A 70 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 4/5/79
Ambient 'air'
Temperature 69 °F
Pressure 29.45 in. Hg
Humidity 40 %

Reading No.			1.	2.	3.	4.
T, min	190137.000	190144.000	190170.000	190248.000	190307.000	190366.000
W, lb	2973.300	2971.500	2970.300	2968.200	2966.400	2963.900
ΔT, h				1.300	0.983	0.983
ΔW, lb				-2.100	-1.800	-2.500
ΣΔT, h				1.300	2.283	3.267
ΣΔW, lb				-2.100	-3.900	-6.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h				-1.615	-1.831	-2.542
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h				-1.615	-1.708	-1.959
$\bar{X}$, lb/h				-1.615	-1.662	-1.761

TABLE A-72 (continued) Page 2 of 5

Reading No.	5.	6.	7.	8.	9.	10.
T, min	190430.000	190490.000	190554.000	190606.000	190673.000	190731.000
W, lb	2961.100	2959.200	2956.900	2953.500	2952.500	2949.100
ΔT, h	1.067	1.000	1.067	0.867	1.117	0.967
ΔW, lb	-2.800	-1.900	-2.300	-3.400	-1.000	-3.400
$\Sigma\Delta T$, h	4.333	5.333	6.400	7.267	8.383	9.350
$\Sigma\Delta W$, lb	-9.200	-11.100	-13.400	-16.800	-17.800	-21.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.625	-1.900	-2.156	-3.923	-0.896	-3.517
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.123	-2.081	-2.094	-2.312	-2.123	-2.267
$\bar{X}$, lb/h	-1.851	-1.897	-1.930	-1.985	-2.002	-2.031

(continued)

TABLE A-72 (continued) Page 3 of 5

Reading No.	11.	12.	13.	14.	15.	16.
T, min	190790.000	190848.000	190907.000	190967.000	191026.000	191088.000
W, lb	2948.000	2944.000	2943.000	2940.200	2938.000	2935.500
ΔT, h	0.983	0.967	0.983	1.000	0.983	1.033
ΔW, lb	-1.100	-4.000	-1.000	-2.800	-2.200	-2.500
$\Sigma\Delta T$, h	10.333	11.300	12.283	13.283	14.267	15.300
$\Sigma\Delta W$, lb	-22.300	-26.300	-27.300	-30.100	-32.300	-34.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.119	-4.138	-1.017	-2.800	-2.237	-2.419
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.158	-2.327	-2.223	-2.266	-2.264	-2.275
$\bar{X}$, lb/h	-2.044	-2.070	-2.083	-2.097	-2.109	-2.120

(continued)

TABLE A-72 (continued) Page 4 of 5

Reading No.	17.	18.	19.	20.	21.	22.
T, min	191146.000	191204.000	191266.000	191325.000	191385.000	191445.000
W, lb	2932.600	2931.300	2927.000	2925.000	2922.200	2919.700
ΔT, h	0.967	0.967	1.033	0.983	1.000	1.000
ΔW, lb	-2.900	-1.300	-4.300	-2.000	-2.800	-2.500
$\Sigma\Delta T$, h	16.267	17.233	18.267	19.250	20.250	21.250
$\Sigma\Delta W$, lb	-37.700	-39.000	-43.300	-45.300	-48.100	-50.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.000	-1.345	-4.161	-2.034	-2.800	-2.500
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.318	-2.263	-2.370	-2.353	-2.375	-2.381
$\bar{X}$, lb/h	-2.132	-2.140	-2.153	-2.163	-2.174	-2.184

(continued)

TABLE A-72 (continued) Page 5 of 5

Reading No.	23.	24.	25.			
T, min	191504.000	191572.000	191625.000	191805.000	190108.000	
W, lb	2917.300	2915.000	2912.700	2911.000	2976.200	
ΔT, h	0.983	1.133	0.883			
ΔW, lb	-2.400	-2.300	-2.300			
$\Sigma\Delta T$, h	22.233	23.367	24.250			
$\Sigma\Delta W$, lb	-53.000	-55.300	-57.600			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.441	-2.029	-2.604			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.384	-2.367	-2.375			
$\bar{X}$, lb/h	-2.193	-2.200	-2.208			

n	S_{yx}	$t_{\alpha/2}$
Slope	S_x	r
Intercept	S_a	Confidence interval
	S_b	

TABLE A-73 SUMMARY OF DATA FROM TEST NO. 41

Page 1 of 5

Degreaser A, operating

Solvent: Methylene chloride

FB 125 % PC x SC - A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 4/11/79
Ambient air
Temperature 70 °F
Pressure 29.6 in. Hg
Humidity 36 %

Reading No.				1.	2.	3.
T, min	198151.000	198163.000	198169.000	198194.000	198255.000	198317.000
W, lb	3782.200	3780.500	3778.000	3777.000	3775.000	3773.700
ΔT, h					1.017	1.033
ΔW, lb					-2.000	-1.300
ΣΔT, h					1.017	2.050
ΣΔW, lb					-2.000	-3.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.967	-1.258
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.967	-1.610
$\bar{X}$, lb/h					-1.967	-1.788

TABLE A-73 (continued)

Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	198377.000	198437.000	198497.000	198557.000	198617.000	198677.000
W, lb	3772.600	3771.600	3769.400	3768.600	3767.600	3766.400
ΔT, h	1.000	1.000	1.000	1.000	1.000	1.000
ΔW, lb	-1.100	-1.000	-2.200	-0.800	-1.000	-1.200
ΣΔT, h	3.050	4.050	5.050	6.050	7.050	8.050
ΣΔW, lb	-4.400	-5.400	-7.600	-8.400	-9.400	-10.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.100	-1.000	-2.200	-0.800	-1.000	-1.200
$-\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.443	-1.333	-1.505	-1.388	-1.333	-1.317
$\bar{X}$, lb/h	-1.673	-1.588	-1.572	-1.541	-1.511	-1.487

(continued)

TABLE A-73 (continued) Page 3 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	198737.000	198797.000	198865.000	198917.000	198975.000	199034.000
W, lb	3765.000	3763.900	3761.700	3761.100	3759.700	3758.800
ΔT, h	1.000	1.000	1.133	0.867	0.967	0.983
ΔW, lb	-1.400	-1.100	-2.200	-0.600	-1.400	-0.900
ΣΔT, h	9.050	10.050	11.183	12.050	13.017	14.000
ΣΔW, lb	-12.000	-13.100	-15.300	-15.900	-17.300	-18.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.400	-1.100	-1.941	-0.692	-1.448	-0.915
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-1.326	-1.303	-1.368	-1.320	-1.329	-1.300
$\bar{X}$, lb/h	-1.469	-1.453	-1.445	-1.434	-1.426	-1.417

(continued)

TABLE A-73 (continued) Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	199099.000	199157.000	199216.000	199275.000	199337.000	199397.000
W, lb	3757.500	3756.300	3754.700	3753.600	3751.700	3750.500
ΔT, h	1.083	0.967	0.983	0.983	1.033	1.000
ΔW, lb	-1.300	-1.200	-1.600	-1.100	-1.900	-1.200
$\Sigma\Delta T$, h	15.083	16.050	17.033	18.017	19.050	20.050
$\Sigma\Delta W$, lb	-19.500	-20.700	-22.300	-23.400	-25.300	-26.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.200	-1.241	-1.627	-1.119	-1.839	-1.200
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.293	-1.290	-1.309	-1.299	-1.328	-1.322
$\bar{X}$, lb/h	-1.409	-1.402	-1.396	-1.391	-1.387	-1.384

(continued)

TABLE A-73 (continued)

Reading No.	22.	23.	24.	25.	26.	
T, min	199458.000	199518.000	199579.000	199638.000	199644.000	199713.000
W, lb	3749.000	3748.000	3746.700	3745.700	3747.200	3747.800
ΔT, h	1.017	1.000	1.017	0.983	0.100	
ΔW, lb	-1.500	-1.000	-1.300	-1.000	1.500	
ΣΔT, h	21.067	22.067	23.083	24.067	24.167	
ΣΔW, lb	-28.000	-29.000	-30.300	-31.300	-29.800	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.475	-1.000	-1.279	-1.017	15.000	
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.329	-1.314	-1.313	-1.301	-1.233	
$\bar{X}$, lb/h	-1.382	-1.378	-1.376	-1.372	-1.367	

n 25

Slope -1.29

Intercept -0.627

S_{yx} 0.442

S_x 7.506

S_a 0.012

S_b 0.172

S_c 3.280

$t_{\alpha/2}$ 2.069

r -1.000

Confidence interval

1.29 ± 0.025

TABLE A-74 SUMMARY OF DATA FROM TEST NO. 41 Page 1 of 5

Degreaser B, operating

Solvent: Methylene chloride

FB 125 % PC x SC - A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 4/11/79
Ambient air
Temperature 70 °F
Pressure 29.6 in. Hg
Humidity 36 %

Reading No.				1.	2.	3.
T, min	198151.000	198163.000	198169.000	198194.000	198255.000	198317.000
W, lb	3135.000	3133.000	3132.000	3129.500	3128.800	3126.600
ΔT, h					1.017	1.033
ΔW, lb					-0.700	-2.200
$\Sigma \Delta T$, h					1.017	2.050
$\Sigma \Delta W$, lb					-0.700	-2.900
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-0.689	-2.129
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h					-0.689	-1.415
$\bar{X}$, lb/h					-0.689	-1.052

TABLE A-74 (continued)

Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	198377.000	198437.000	198497.000	198557.000	198617.000	198677.000
W, lb	3125.600	3124.000	3122.000	3121.300	3118.800	3116.800
ΔT, h	1.000	1.000	1.000	1.000	1.000	1.000
ΔW, lb	-1.000	-1.600	-2.000	-0.700	-2.500	-2.000
ΣΔT, h	3.050	4.050	5.050	6.050	7.050	8.050
ΣΔW, lb	-3.900	-5.500	-7.500	-8.200	-10.700	-12.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.000	-1.600	-2.000	-0.700	-2.500	-2.000
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.279	-1.358	-1.485	-1.355	-1.518	-1.578
$\bar{X}$, lb/h	-1.127	-1.185	-1.245	-1.263	-1.300	-1.334

(continued)

TABLE A-74 (continued) Page 3 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	198737.000	198797.000	198865.000	198917.000	198975.000	199034.000
W, lb	3115.600	3113.900	3111.400	3110.200	3108.600	3106.700
ΔT, h	1.000	1.000	1.133	0.867	0.967	0.983
ΔW, lb	-1.200	-1.700	-2.500	-1.200	-1.600	-1.900
$\Sigma\Delta T$, h	9.050	10.050	11.183	12.050	13.017	14.000
$\Sigma\Delta W$, lb	-13.900	-15.600	-18.100	-19.300	-20.900	-22.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.200	-1.700	-2.206	-1.385	-1.655	-1.932
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.536	-1.552	-1.618	-1.602	-1.606	-1.629
$\bar{X}$, lb/h	-1.357	-1.376	-1.398	-1.415	-1.430	-1.444

(continued)

TABLE A-74 (continued)

Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	199099.000	199157.000	199216.000	199275.000	199337.000	199397.000
W, lb	3104.500	3103.200	3101.300	3099.700	3098.000	3096.300
ΔT, h	1.083	0.967	0.983	0.983	1.033	1.000
ΔW, lb	-2.200	-1.300	-1.900	-1.600	-1.700	-1.700
$\Sigma\Delta T$, h	15.083	16.050	17.033	18.017	19.050	20.050
$\Sigma\Delta W$, lb	-25.000	-26.300	-28.200	-29.800	-31.500	-33.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.031	-1.345	-1.932	-1.627	-1.645	-1.700
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.657	-1.639	-1.656	-1.654	-1.654	-1.656
$\bar{X}$, lb/h	-1.458	-1.470	-1.481	-1.490	-1.499	-1.507

(continued)

TABLE A-74 (continued) Page 5 of 5

Reading No.	22.	23.	24.	25.	26.	
T, min	199458.000	199518.000	199579.000	199638.000	199644.000	199827.000
W, lb	3094.700	3093.300	3091.100	3088.800	3091.000	3090.900
ΔT, h	1.017	1.000	1.017	0.983	0.100	
ΔW, lb	-1.600	-1.400	-2.200	-2.300	2.200	
$\Sigma\Delta T$, h	21.067	22.067	23.083	24.067	24.167	
$\Sigma\Delta W$, lb	-34.800	-36.200	-38.400	-40.700	-38.500	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.574	-1.400	-2.164	-2.339	22.000	
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.652	-1.640	-1.664	-1.691	-1.593	
$\bar{X}$, lb/h	-1.514	-1.519	-1.526	-1.533	-1.535	

n 25

Slope -1.71

Intercept 1.211

S_{yx} 0.480

S_x 7.306

S_a 0.013

S_b 0.172

S_c 4.760

$t_{\alpha/2}$ 2.069

r -1.000

Confidence interval

1.71 ± 0.027

TABLE A-75 SUMMARY OF DATA FROM TEST NO. 42

Page 1 of 6

Degreaser A, operating

Solvent: Methylene chloride

FB 125 % PC x SC - A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 4/12/79
Ambient air
Temperature 72 °F
Pressure 29.45 in. Hg
Humidity 62 %

Reading No.				1.	2.	3.
T, min	199916.000	199923.000	199930.000	199964.000	200026.000	200086.000
W, lb	3746.200	3745.200	3743.900	3745.400	3742.700	3740.400
ΔT, h					1.033	1.000
ΔW, lb					-2.700	-2.300
$\Sigma\Delta T$, h					1.033	2.033
$\Sigma\Delta W$, lb					-2.700	-5.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-2.613	-2.300
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-2.613	-2.459
$\bar{X}$, lb/h					-2.613	-2.536

TABLE A-75 (continued)

Page 2 of 6

Reading No.	4.	5.	6.	7.	8.	9.
T, min	200148.000	200202.000	200267.000	200330.000	200388.000	200447.000
W, lb	3739.300	3737.000	3736.500	3735.500	3734.300	3732.600
ΔT, h	1.033	0.900	1.083	1.050	0.967	0.983
ΔW, lb	-1.100	-2.300	-0.500	-1.000	-1.200	-1.700
ΣΔT, h	3.067	3.967	5.050	6.100	7.067	8.050
ΣΔW, lb	-6.100	-8.400	-8.900	-9.900	-11.100	-12.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.065	-2.556	-0.462	-0.952	-1.241	-1.729
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.989	-2.118	-1.762	-1.623	-1.571	-1.590
$\bar{X}$, lb/h	-2.354	-2.295	-2.188	-2.094	-2.019	-1.966

(continued)

TABLE A-75 (continued)

Page 3 of 6

Reading No.	10.	11.	12.	13.	14.	15.
T, min	200506.000	200577.000	200629.000	200687.000	200746.000	200779.000
W, lb	3731.300	3729.800	3728.500	3727.300	3726.500	3725.700
ΔT, h	0.983	1.183	0.867	0.967	0.983	0.550
ΔW, lb	-1.300	-1.500	-1.300	-1.200	-0.800	-0.800
$\Sigma\Delta T$, h	9.033	10.217	11.083	12.050	13.033	13.583
$\Sigma\Delta W$, lb	-14.100	-15.600	-16.900	-18.100	-18.900	-19.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.322	-1.268	-1.500	-1.241	-0.814	-1.455
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.561	-1.527	-1.525	-1.502	-1.450	-1.450
$\bar{X}$, lb/h	-1.921	-1.881	-1.849	-1.820	-1.792	-1.767

(continued)

TABLE A-75 (continued)

Page 4 of 6

Reading No.	16.	17.	18.	19.	20.	21.
T, min	200839.000	200900.000	200960.000	201019.000	201078.000	201139.000
W, lb	3724.000	3723.100	3721.500	3720.200	3718.900	3718.000
ΔT, h	1.000	1.017	1.000	0.983	0.983	1.017
ΔW, lb	-1.700	-0.900	-1.600	-1.300	-1.300	-0.900
$\Sigma\Delta T$, h	14.583	15.600	16.600	17.583	18.567	19.583
$\Sigma\Delta W$, lb	-21.400	-22.300	-23.900	-25.200	-26.500	-27.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.700	-0.885	-1.600	-1.322	-1.322	-0.885
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.467	-1.429	-1.440	-1.433	-1.427	-1.399
$\bar{X}$, lb/h	-1.747	-1.727	-1.710	-1.695	-1.681	-1.667

(continued)

TABLE A-75 (continued)

Page 5 of 6

Reading No.	22.	23.	24.	25.	26.	
T, min	201199.000	201238.000	201293.000	201358.000	201409.000	201436.000
W, lb	3716.700	3715.900	3715.600	3713.900	3713.000	3712.500
ΔT, h	1.000	0.650	0.917	1.083	0.850	
ΔW, lb	-1.300	-0.800	-0.300	-1.700	-0.900	
ΣΔT, h	20.583	21.233	22.150	23.233	24.083	
ΣΔW, lb	-28.700	-29.500	-29.800	-31.500	-32.400	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.300	-1.231	-0.327	-1.569	-1.059	
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-1.394	-1.389	-1.345	-1.356	-1.345	
$\bar{X}$, lb/h	-1.654	-1.642	-1.629	-1.618	-1.607	

(continued)

TABLE A-75 (continued) Page 6 of 6

Reading No.						
T, min	201496.000					
W, lb	3714.100					
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n 25

Slope -1.29

Intercept -2.480

S_{yx} 0.444

S_x 7.058

S_a 0.013

S_b 0.176

S_c 0.551

$t_{\alpha/2}$ 2.069

r -0.998

Confidence interval

1.29 ± 0.027

TABLE A-76 SUMMARY OF DATA FROM TEST NO. 43

Page 1 of 6

Degreaser B, operating

Solvent: Methylene chloride

FB 125 % PC x SC - A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 4/12/79
Ambient air
Temperature 72 °F
Pressure 29.45 in. Hg
Humidity 62 %

Reading No.				1.	2.	3.
T, min	199916.000	199921.000	199927.000	199964.000	200026.000	200086.000
W, lb	3090.000	3088.400	3086.000	3082.100	3080.400	3080.700
ΔT, h					1.033	1.000
ΔW, lb					-1.700	0.300
ΣΔT, h					1.033	2.033
ΣΔW, lb					-1.700	-1.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.645	0.300
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.645	-0.689
$\bar{X}$, lb/h					-1.645	-1.167

TABLE A-76 (continued)

Reading No.	4.	5.	6.	7.	8.	9.
T, min	200148.000	200202.000	200267.000	200330.000	200388.000	200447.000
W, lb	3079.900	3082.900	3083.300	3076.800	3076.100	3075.300
ΔT, h	1.033	0.900	1.083	1.050	0.967	0.983
ΔW, lb	-0.800	3.000	0.400	-6.500	-0.700	-0.800
ΣΔT, h	3.067	3.967	5.050	6.100	7.067	8.050
ΣΔW, lb	-2.200	0.800	1.200	-5.300	-6.000	-6.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.774	3.333	0.369	-6.190	-0.724	-0.814
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-0.717	0.202	0.238	-0.869	-0.849	-0.845
$\bar{X}$, lb/h	-1.017	-0.712	-0.522	-0.580	-0.619	-0.647

(continued)

TABLE A-76 (continued)

Page 3 of 6

Reading No.	10.	11.	12.	13.	14.	15.
T, min	200506.000	200577.000	200629.000	200687.000	200746.000	200779.000
W, lb	3074.300	3073.200	3072.400	3071.300	3071.000	3070.500
ΔT, h	0.983	1.183	0.867	0.967	0.983	0.550
ΔW, lb	-1.000	-1.100	-0.800	-1.100	-0.300	-0.500
$\Sigma\Delta T$, h	9.033	10.217	11.083	12.050	13.033	13.583
$\Sigma\Delta W$, lb	-7.800	-8.900	-9.700	-10.800	-11.100	-11.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.017	-0.930	-0.923	-1.138	-0.305	-0.909
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-0.863	-0.871	-0.875	-0.896	-0.852	-0.854
$\bar{X}$, lb/h	-0.671	-0.691	-0.708	-0.723	-0.733	-0.742

(continued)

TABLE A-76 (continued) **Page 4 of 6**

Reading No.	16.	17.	18.	19.	20.	21.
T, min	200839.000	200900.000	200960.000	201019.000	201078.000	201139.000
W, lb	3070.500	3071.100	3067.400	3066.200	3066.000	3067.500
ΔT, h	1.000	1.017	1.000	0.983	0.983	1.017
ΔW, lb	0.000	0.600	-3.700	-1.200	-0.200	1.500
$\Sigma\Delta T$, h	14.583	15.600	16.600	17.583	18.567	19.583
$\Sigma\Delta W$, lb	-11.600	-11.000	-14.700	-15.900	-16.100	-14.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	0.000	0.590	-3.700	-1.220	-0.203	1.475
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-0.795	-0.705	-0.886	-0.904	-0.867	-0.746
$\bar{X}$, lb/h	-0.745	-0.743	-0.751	-0.760	-0.765	-0.764

(continued)

TABLE A-76 (continued) Page 5 of 6

Reading No.	22.	23.	24.	25.	26.	
T, min	201199.000	201238.000	201293.000	201358.000	201409.000	201436.000
W, lb	3066.000	3063.200	3062.900	3061.700	3061.300	3060.900
ΔT, h	1.000	0.650	0.917	1.083	0.850	
ΔW, lb	-1.500	-2.800	-0.300	-1.200	-0.400	
$\Sigma\Delta T$, h	20.583	21.233	22.150	23.233	24.083	
$\Sigma\Delta W$, lb	-16.100	-18.900	-19.200	-20.400	-20.800	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.500	-4.308	-0.327	-1.108	-0.471	
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-0.782	-0.890	-0.867	-0.878	-0.864	
$\bar{X}$, lb/h	-0.765	-0.771	-0.775	-0.779	-0.783	

(continued)

TABLE A-76 (continued) Page 6 of 6

Reading No.						
T, min	201594.000					
W, lb	3062.600					
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n 25

Slope -0.987

Intercept 1.195

S_{yx} 1.543

S_x 7.058

S_a 0.045

S_h 0.176

S_c 1.821

$t_{\alpha/2}$ 2.069

r -0.992

Confidence interval

0.897 ± 0.093

TABLE A-77 SUMMARY OF DATA FROM TEST NO. 43 Page 1 of 5

Degreaser A, operating

Solvent: Methylene chloride

Date 4/9/79
Ambient air
Temperature 69 °F
Pressure 29.45 in. Hg
Humidity 39 %

FB 125 % PC x SC - A 70 %
Inlet air x Exhaust air x V 8 ft/min
Other

Reading No.				1.	2.	3.
T, min	196348.000	196356.000	196362.000	196399.000	196464.000	196520.000
W, lb	3787.400	3785.700	3784.000	3782.200	3780.200	3778.600
ΔT, h					1.083	0.933
ΔW, lb					-2.000	-1.600
ΣΔT, h					1.083	2.017
ΣΔW, lb					-2.000	-3.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.846	-1.714
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.846	-1.785
$\bar{X}$, lb/h					-1.846	-1.816

TABLE A-77 (continued) Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	196581.000	196641.000	196701.000	196760.000	196821.000	196880.000
W, lb	3777.300	3775.500	3773.500	3772.500	3771.100	3769.300
ΔT, h	1.017	1.000	1.000	0.983	1.017	0.983
ΔW, lb	-1.300	-1.800	-2.000	-1.000	-1.400	-1.800
$\Sigma\Delta T$, h	3.033	4.033	5.033	6.017	7.033	8.017
$\Sigma\Delta W$, lb	-4.900	-6.700	-8.700	-9.700	-11.100	-12.900
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.279	-1.800	-2.000	-1.017	-1.377	-1.831
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.615	-1.661	-1.728	-1.612	-1.578	-1.609
$\bar{X}$, lb/h	-1.749	-1.727	-1.727	-1.708	-1.690	-1.679

(continued)

TABLE A-77 (continued)

Page 3 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	196941.000	196998.000	197057.000	197120.000	197176.000	197239.000
W, lb	3768.300	3766.900	3765.200	3762.800	3761.800	3760.600
ΔT, h	1.017	0.950	0.983	1.050	0.933	1.050
ΔW, lb	-1.000	-1.400	-1.700	-2.400	-1.000	-1.200
ΣΔT, h	9.033	9.983	10.967	12.017	12.950	14.000
ΣΔW, lb	-13.900	-15.300	-17.000	-19.400	-20.400	-21.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.984	-1.474	-1.729	-2.286	-1.071	-1.143
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.539	-1.533	-1.550	-1.614	-1.575	-1.543
$\bar{X}$, lb/h	-1.664	-1.651	-1.642	-1.639	-1.634	-1.628

(continued)

TABLE A-77 (continued)

Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	197298.000	197361.000	197420.000	197485.000	197544.000	197602.000
W, lb	3759.100	3757.500	3755.500	3754.100	3752.500	3750.800
ΔT, h	0.983	1.050	0.983	1.083	0.983	0.967
ΔW, lb	-1.500	-1.600	-2.000	-1.400	-1.600	-1.700
$\Sigma\Delta T$, h	14.983	16.033	17.017	18.100	19.083	20.050
$\Sigma\Delta W$, lb	-23.100	-24.700	-26.700	-28.100	-29.700	-31.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.525	-1.524	-2.034	-1.292	-1.627	-1.759
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.542	-1.541	-1.569	-1.552	-1.556	-1.566
$\bar{X}$, lb/h	-1.622	-1.617	-1.614	-1.611	-1.608	-1.606

(continued)

TABLE A-77 (continued)

Page 5 of 5

Reading No.	22.	23.	24.	25.		
T, min	197660.000	197719.000	197777.000	197839.000	197869.000	197948.000
W, lb	3749.200	3747.600	3745.900	3744.400	3744.000	3745.500
ΔT, h	0.967	0.983	0.967	1.033		
ΔW, lb	-1.600	-1.600	-1.700	-1.500		
ΣΔT, h	21.017	22.000	22.967	24.000		
ΣΔW, lb	-33.000	-34.600	-36.300	-37.800		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.655	-1.627	-1.759	-1.452		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.570	-1.573	-1.581	-1.575		
$\bar{X}$, lb/h	-1.604	-1.603	-1.602	-1.601		

n	24	S_{yx}	0.310	$t_{\alpha/2}$	2.074
Slope	-1.550	S_x	7.065	r	-1.000
Intercept	-0.283	S_a	0.009	Confidence interval	
		S_b	0.178	1.550 ± 0.019	
		S_c	0.333		

TABLE A-78 SUMMARY OF DATA FROM TEST NO. 43

Page 1 of 5

Degreaser B, operating

Solvent: Methylene chloride

FB 125 % PC x SC - A 70 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 4/9/79
Ambient air
Temperature 69 °F
Pressure 29.45 in. Hg
Humidity 39 %

Reading No.				1.	2.	3.
T, min	196348.000	196354.000	196359.000	196399.000	196464.000	196520.000
W, lb	3212.100	3211.800	3208.700	3207.200	3204.500	3202.700
ΔT, h					1.083	0.933
ΔW, lb					-2.700	-1.800
ΣΔT, h					1.083	2.017
ΣΔW, lb					-2.700	-4.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-2.492	-1.929
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-2.492	-2.231
$\bar{X}$, lb/h					-2.492	-2.362

TABLE A-78 (continued)

Reading No.	4.	5.	6.	7.	8.	9.
T, min	196581.000	196641.000	196701.000	196760.000	196821.000	196880.000
W, lb	3200.500	3198.300	3196.300	3194.300	3192.000	3189.300
ΔT, h	1.017	1.000	1.000	0.983	1.017	0.983
ΔW, lb	-2.200	-2.200	-2.000	-2.000	-2.300	-2.700
ΣΔT, h	3.033	4.033	5.033	6.017	7.033	8.017
ΣΔW, lb	-6.700	-8.900	-10.900	-12.900	-15.200	-17.900
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.164	-2.200	-2.000	-2.034	-2.262	-2.746
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.209	-2.207	-2.166	-2.144	-2.161	-2.233
$\bar{X}$, lb/h	-2.311	-2.285	-2.261	-2.241	-2.230	-2.230

(continued)

TABLE A-78 (continued) Page 3 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	196941.000	196998.000	197057.000	197120.000	197176.000	197239.000
W, lb	3187.500	3186.100	3184.900	3182.000	3179.200	3177.100
ΔT, h	1.017	0.950	0.983	1.050	0.933	1.050
ΔW, lb	-1.800	-1.400	-1.200	-2.900	-2.800	-2.100
$\Sigma\Delta T$, h	9.033	9.983	10.967	12.017	12.950	14.000
$\Sigma\Delta W$, lb	-19.700	-21.100	-22.300	-25.200	-28.000	-30.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.770	-1.474	-1.220	-2.762	-3.000	-2.000
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.181	-2.114	-2.033	-2.097	-2.162	-2.150
$\bar{X}$, lb/h	-2.225	-2.214	-2.197	-2.189	-2.187	-2.184

(continued)

TABLE A-78 (continued) Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	197298.000	197361.000	197420.000	197485.000	197544.000	197602.000
W, lb	3174.600	3173.500	3170.400	3168.100	3166.100	3164.000
ΔT, h	0.983	1.050	0.983	1.083	0.983	0.967
ΔW, lb	-2.500	-1.100	-3.100	-2.300	-2.000	-2.100
ΣΔT, h	14.983	16.033	17.017	18.100	19.083	20.050
ΣΔW, lb	-32.600	-33.700	-36.800	-39.100	-41.100	-43.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.542	-1.048	-3.153	-2.123	-2.034	-2.172
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.176	-2.102	-2.163	-2.160	-2.154	-2.155
$\bar{X}$, lb/h	-2.184	-2.179	-2.178	-2.177	-2.175	-2.174

(continued)

TABLE A-78 (continued)

Page 5 of 5

Reading No.	22.	23.	24.	25.		
T, min	197660.000	197719.000	197777.000	197839.000	197869.000	198074.000
W, lb	3162.100	3160.200	3157.900	3156.000	3155.700	3156.500
ΔT, h	0.967	0.983	0.967	1.033		
ΔW, lb	-1.900	-1.900	-2.300	-1.900		
ΣΔT, h	21.017	22.000	22.967	24.000		
ΣΔW, lb	-45.100	-47.000	-49.300	-51.200		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.966	-1.932	-2.379	-1.839		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.146	-2.136	-2.147	-2.133		
$\bar{X}$, lb/h	-2.173	-2.171	-2.170	-2.169		

n	24	S_{yx}	0.413	$t_{\alpha/2}$	2.074
Slope	-2.14	S_x	7.065	r	-1.000
Intercept	-0.170	S_a	0.012	**Confidence interval**	
		S_b	0.178	2.14 ± 0.025	
		S_c	0.501		

TABLE A-79 SUMMARY OF DATA FROM TEST NO. 44

Page 1 of 5

Degreaser A, operating

Solvent: Methylene chloride

FB 125 % PC x SC x A 70 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 4/8/79
Ambient air
Temperature 70 °F
Pressure 29.16 in. Hg
Humidity 46 %

Reading No.				1.	2.	3.
T, min	194603.000	194624.000	194632.000	194658.000	194722.000	194788.000
W, lb	3697.700	3695.300	3692.600	3692.600	3689.900	3688.200
ΔT, h					1.067	1.100
ΔW, lb					-2.700	-1.700
ΣΔT, h					1.067	2.167
ΣΔW, lb					-2.700	-4.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-2.531	-1.545
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-2.531	-2.031
$\bar{X}$, lb/h					-2.531	-2.281

TABLE A-79 (continued) Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	194840.000	194899.000	194964.000	195019.000	195081.000	195138.000
W, lb	3686.800	3685.400	3684.100	3682.500	3681.600	3680.400
ΔT, h	0.867	0.983	1.083	0.917	1.033	0.950
ΔW, lb	-1.400	-1.400	-1.300	-1.600	-0.900	-1.200
ΣΔT, h	3.033	4.017	5.100	6.017	7.050	8.000
ΣΔW, lb	-5.800	-7.200	-8.500	-10.100	-11.000	-12.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.615	-1.424	-1.200	-1.745	-0.871	-1.263
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.912	-1.793	-1.667	-1.679	-1.560	-1.525
$\bar{X}$, lb/h	-2.158	-2.067	-1.987	-1.935	-1.883	-1.837

(continued)

TABLE A-79 (continued) Page 3 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	195200.000	195257.000	195320.000	195380.000	195440.000	195494.000
W, lb	3679.300	3677.600	3676.200	3675.300	3674.000	3672.600
ΔT, h	1.033	0.950	1.050	1.000	1.000	0.900
ΔW, lb	-1.100	-1.700	-1.400	-0.900	-1.300	-1.400
ΣΔT, h	9.033	9.983	11.033	12.033	13.033	13.933
ΣΔW, lb	-13.300	-15.000	-16.400	-17.300	-18.600	-20.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.065	-1.789	-1.333	-0.900	-1.300	-1.556
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.472	-1.503	-1.486	-1.438	-1.427	-1.435
$\bar{X}$, lb/h	-1.797	-1.767	-1.742	-1.716	-1.694	-1.676

(continued)

TABLE A-79 (continued) Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	195559.000	195621.000	195685.000	195740.000	195799.000	195861.000
W, lb	3671.500	3670.200	3668.800	3667.600	3666.300	3664.600
ΔT, h	1.083	1.033	1.067	0.917	0.983	1.033
ΔW, lb	-1.100	-1.300	-1.400	-1.200	-1.300	-1.700
ΣΔT, h	15.017	16.050	17.117	18.033	19.017	20.050
ΣΔW, lb	-21.100	-22.400	-23.800	-25.000	-26.300	-28.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.015	-1.258	-1.313	-1.309	-1.322	-1.645
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.405	-1.396	-1.390	-1.386	-1.383	-1.397
$\bar{X}$, lb/h	-1.658	-1.641	-1.626	-1.613	-1.601	-1.591

(continued)

TABLE A-79 (continued) **Page 5 of 5**

Reading No.	22.	23.	24.	25.		
T, min	195921.000	195984.000	196043.000	196100.000	196127.000	196201.000
W, lb	3662.800	3661.500	3660.400	3658.800	3658.300	3659.500
ΔT, h	1.000	1.050	0.983	0.950		
ΔW, lb	-1.800	-1.300	-1.100	-1.600		
$\Sigma\Delta T$, h	21.050	22.100	23.083	24.033		
$\Sigma\Delta W$, lb	-29.800	-31.100	-32.200	-33.800		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.800	-1.230	-1.119	-1.684		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.416	-1.407	-1.395	-1.406		
$\bar{X}$, lb/h	-1.582	-1.574	-1.567	-1.560		

n	24	S_{yx}	0.306	$t_{\alpha/2}$	2.074
Slope	-1.33	S_x	7.069	**r**	-0.999
Intercept	-1.628	S_a	0.009	**Confidence interval**	
		S_b	0.179	1.33 ± 0.019	
		S_c	0.358		

TABLE A-80 SUMMARY OF DATA FROM TEST NO. 44 **Page** 1 **of** 5

Degreaser B, operating

Solvent: Methylene chloride

FB 125 % PC x SC x A 70 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 4/8/78
Ambient air
Temperature 70 °F
Pressure 29.16 in. Hg
Humidity 46 %

Reading No.				1.	2.	3.
T, min	194603.000	194620.000	194627.000	194658.000	194722.000	194788.000
W, lb	3135.400	3134.900	3132.400	3132.100	3130.400	3128.700
ΔT, h					1.067	1.100
ΔW, lb					-1.700	-1.700
$\Sigma\Delta T$, h					1.067	2.167
$\Sigma\Delta W$, lb					-1.700	-3.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.594	-1.545
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.594	-1.569
$\bar{X}$, lb/h					-1.594	-1.581

TABLE A-80 (continued) Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	194840.000	194899.000	194964.000	195019.000	195081.000	195138.000
W, lb	3127.800	3127.000	3125.900	3124.000	3123.100	3121.700
ΔT, h	0.867	0.983	1.083	0.917	1.033	0.950
ΔW, lb	-0.900	-0.800	-1.100	-1.900	-0.900	-1.400
$\Sigma\Delta T$, h	3.033	4.017	5.100	6.017	7.050	8.000
$\Sigma\Delta W$, lb	-4.300	-5.100	-6.200	-8.100	-9.000	-10.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.038	-0.814	-1.015	-2.073	-0.871	-1.474
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.418	-1.270	-1.216	-1.346	-1.277	-1.300
$\bar{X}$, lb/h	-1.527	-1.463	-1.413	-1.402	-1.384	-1.374

(continued)

TABLE A-80 (continued)

Page 3 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	195200.000	195257.000	195320.000	195380.000	195440.000	195494.000
W, lb	3120.700	3119.700	3118.500	3116.500	3115.500	3113.900
ΔT, h	1.033	0.950	1.050	1.000	1.000	0.900
ΔW, lb	-1.000	-1.000	-1.200	-2.000	-1.000	-1.600
ΣΔT, h	9.033	9.983	11.033	12.033	13.033	13.933
ΣΔW, lb	-11.400	-12.400	-13.600	-15.600	-16.600	-18.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.968	-1.053	-1.143	-2.000	-1.000	-1.778
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.262	-1.242	-1.233	-1.296	-1.274	-1.306
$\bar{X}$, lb/h	-1.361	-1.349	-1.339	-1.335	-1.330	-1.329

(continued)

TABLE A-80 (continued)

Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	195559.000	195621.000	195685.000	195740.000	195799.000	195861.000
W, lb	3113.200	3111.000	3109.500	3108.100	3108.700	3106.900
ΔT, h	1.083	1.033	1.067	0.917	0.983	1.033
ΔW, lb	-0.700	-2.200	-1.500	-1.400	0.600	-1.800
$\Sigma\Delta T$, h	15.017	16.050	17.117	18.033	19.017	20.050
$\Sigma\Delta W$, lb	-18.900	-21.100	-22.600	-24.000	-23.400	-25.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.646	-2.129	-1.406	-1.527	0.610	-1.742
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.259	-1.315	-1.320	-1.331	-1.230	-1.257
$\bar{X}$, lb/h	-1.324	-1.323	-1.323	-1.324	-1.319	-1.316

(continued)

TABLE A-80 (continued)

Reading No.	22.	23.	24.	25.		
T, min	195921.000	195984.000	196043.000	196100.000	196127.000	196294.000
W, lb	3105.100	3103.300	3101.400	3100.600	3100.200	3100.800
ΔT, h	1.000	1.050	0.983	0.950		
ΔW, lb	-1.800	-1.800	-1.900	-0.800		
$\Sigma\Delta T$, h	21.050	22.100	23.083	24.033		
$\Sigma\Delta W$, lb	-27.000	-28.800	-30.700	-31.500		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.800	-1.714	-1.932	-0.842		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.283	-1.303	-1.330	-1.311		
$\bar{X}$, lb/h	-1.314	-1.314	-1.314	-1.314		

n 24

Slope -1.29

Intercept -0.011

S_{yx} 0.513

S_x 7.069

S_a 0.015

S_b 0.179

S_c 0.604

$t_{\alpha/2}$ 2.074

r -1.000

Confidence interval

1.29 ± 0.031

TABLE A-81 SUMMARY OF DATA FROM TEST NO. 45 Page 1 of 5

Degreaser A, operating

Solvent: Methylene chloride

FB 50 % PC x SC ____ A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other Lip exhaust at 100 ft^3/min per ft^2 top opening

Date 3/28/79
Ambient air
Temperature 68 °F
Pressure 29.68 in. Hg
Humidity 49 %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	178605.000	178674.000	178726.000	178793.000	178852.000	178915.000
W, lb	3938.900	3934.000	3930.400	3926.700	3922.200	3917.500
ΔT, h		1.150	0.867	1.117	0.983	1.050
ΔW, lb		4.900	3.600	3.700	4.500	4.700
$\Sigma\Delta T$, h		1.150	2.017	3.133	4.117	5.167
$\Sigma\Delta W$, lb		4.900	8.500	12.200	16.700	21.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		4.261	4.154	3.313	4.576	4.476
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		4.261	4.215	3.894	4.057	4.142
$\bar{X}$, lb/h		4.261	4.238	4.123	4.107	4.114

TABLE A-81 (continued) Page 2 of 5

Reading No.	7.	8.	9.	10.	11.	12.
T, min	178967.000	179035.000	179096.000	179151.000	179203.000	179265.000
W, lb	3914.000	3910.100	3900.300	3902.000	3897.500	3893.300
ΔT, h	0.867	1.133	1.017	0.917	0.867	1.033
ΔW, lb	3.500	3.900	9.800	-1.700	4.500	4.200
ΣΔT, h	6.033	7.167	8.183	9.100	9.967	11.000
ΣΔW, lb	24.900	28.800	38.600	36.900	41.400	45.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	4.038	3.441	9.639	-1.855	5.192	4.065
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	4.127	4.019	4.717	4.055	4.154	4.145
$\bar{X}$, lb/h	4.116	4.102	4.179	4.165	4.164	4.162

(continued)

TABLE A-81 (continued)

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Reading No.	13.	14.	15.	16.	17.	18.
T, min	179333.000	179387.000	179450.000	179505.000	179568.000	179619.000
W, lb	3888.000	3883.500	3879.000	3875.000	3871.000	3867.000
ΔT, h	1.133	0.900	1.050	0.917	1.050	0.850
ΔW, lb	5.300	4.500	4.500	4.000	4.000	4.000
ΣΔT, h	12.133	13.033	14.083	15.000	16.050	16.900
ΣΔW, lb	50.900	55.400	59.900	63.900	67.900	71.900
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	4.676	5.000	4.286	4.364	3.810	4.706
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	4.195	4.251	4.253	4.260	4.231	4.254
$\bar{X}$, lb/h	4.165	4.172	4.177	4.183	4.186	4.190

(continued)

TABLE A-81 (continued)

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Reading No.	19.	20.	21.	22.	23.	24.
T, min	179683.000	179747.000	179800.000	179865.000	179923.000	179988.000
W, lb	3862.400	3858.300	3854.300	3850.700	3845.400	3840.600
ΔT, h	1.067	1.067	0.883	1.083	0.967	1.083
ΔW, lb	4.600	4.100	4.000	3.600	5.300	4.800
ΣΔT, h	17.967	19.033	19.917	21.000	21.967	23.050
ΣΔW, lb	76.500	80.600	84.600	88.200	93.500	98.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	4.313	3.844	4.528	3.323	5.483	4.431
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	4.258	4.235	4.248	4.200	4.256	4.265
$\bar{X}$, lb/h	4.194	4.196	4.198	4.199	4.201	4.204

(continued)

TABLE A-81 (continued) Page 5 of 5

Reading No.	25.	26.				
T, min	180053.000	180076.000				
W, lb	3836.900	3835.400				
ΔT, h	1.083	0.383				
ΔW, lb	3.700	1.500				
$\Sigma\Delta T$, h	24.133	24.517				
$\Sigma\Delta W$, lb	102.000	103.500				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	3.415	3.913				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	4.227	4.222				
$\bar{X}$, lb/h	4.205	4.206				

n 25

Slope 4.260

Intercept -0.439

S_{yx} 1.057

S_x 7.286

S_a 0.030

S_b 0.173

S_c 1.751

$t_{\alpha/2}$ 2.07

r 1.000

Confidence interval

4.260 ± 0.062

TABLE A-82 SUMMARY OF DATA FROM TEST NO. 46 Page 1 of 5

Degreaser A, operating

Solvent: Methylene chloride

FB 50 % PC x SC - A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other Lip exhaust at 50 ft^3/min per ft^2 top opening

Date 3/29/79
Ambient air
Temperature 73 °F
Pressure 29.65 in. Hg
Humidity 50 %

Reading No.				1.	2.	3.
T, min	180388.000	180401.000	180405.000	180468.000	180528.000	180592.000
W, lb	3818.600	3817.000	3816.200	3812.500	3808.600	3805.400
ΔT, h					1.000	1.067
ΔW, lb					-3.900	-3.200
ΣΔT, h					1.000	2.067
ΣΔW, lb					-3.900	-7.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-3.900	-3.000
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-3.900	-3.435
$\bar{X}$, lb/h					-3.900	-3.668

TABLE A-82 (continued) Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	180647.000	180705.000	180772.000	180826.000	180886.000	180946.000
W, lb	3802.000	3798.700	3795.500	3792.000	3788.400	3785.000
ΔT, h	0.917	0.967	1.117	0.900	1.000	1.000
ΔW, lb	-3.400	-3.300	-3.200	-3.500	-3.600	-3.400
ΣΔT, h	2.983	3.950	5.067	5.967	6.967	7.967
ΣΔW, lb	-10.500	-13.800	-17.000	-20.500	-24.100	-27.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.709	-3.414	-2.866	-3.889	-3.600	-3.400
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-3.520	-3.494	-3.355	-3.436	-3.459	-3.452
$\bar{X}$, lb/h	-3.618	-3.587	-3.541	-3.523	-3.514	-3.506

(continued)

TABLE A-82 (continued)

Page 3 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	181005.000	181061.000	181125.000	181184.000	181249.000	181313.000
W, lb	3781.800	3779.000	3775.000	3773.400	3769.300	3764.800
ΔT, h	0.983	0.933	1.067	0.983	1.083	1.067
ΔW, lb	-3.200	-2.800	-4.000	-1.600	-4.100	-4.500
ΣΔT, h	8.950	9.883	10.950	11.933	13.017	14.083
ΣΔW, lb	-30.700	-33.500	-37.500	-39.100	-43.200	-47.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.254	-3.000	-3.750	-1.627	-3.785	-4.219
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-3.430	-3.390	-3.425	-3.277	-3.319	-3.387
$\bar{X}$, lb/h	-3.498	-3.487	-3.481	-3.464	-3.453	-3.448

(continued)

TABLE A-82 (continued)

Reading No.	16.	17.	18.	19.	20.	21.
T, min	181365.000	181424.000	181488.000	181553.000	181606.000	181666.000
W, lb	3761.400	3757.000	3752.100	3748.700	3744.900	3740.400
ΔT, h	0.867	0.983	1.067	1.083	0.883	1.000
ΔW, lb	-3.400	-4.400	-4.900	-3.400	-3.800	-4.500
$\Sigma\Delta T$, h	14.950	15.933	17.000	18.083	18.967	19.967
$\Sigma\Delta W$, lb	-51.100	-55.500	-60.400	-63.800	-67.600	-72.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.923	-4.475	-4.594	-3.138	-4.302	-4.500
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-3.418	-3.483	-3.553	-3.528	-3.564	-3.611
$\bar{X}$, lb/h	-3.446	-3.449	-3.455	-3.459	-3.464	-3.472

(continued)

TABLE A-82 (continued)

Page 5 of 5

Reading No.	22.	23.	24.	25.		
T, min	181730.000	181795.000	181849.000	181910.000	181938.000	182000.000
W, lb	3737.100	3733.500	3729.900	3725.500	3723.900	3722.900
ΔT, h	1.067	1.083	0.900	1.017		
ΔW, lb	-3.300	-3.600	-3.600	-4.400		
ΣΔT, h	21.033	22.117	23.017	24.033		
ΣΔW, lb	-75.400	-79.000	-82.600	-87.000		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.094	-3.323	-4.000	-4.328		
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-3.585	-3.572	-3.589	-3.620		
$\bar{X}$, lb/h	-3.477	-3.481	-3.486	-3.492		

n	24	S_{yx}	1.212	$t_{\alpha/2}$	2.074
Slope	-3.60	S_x	7.085	r	-1.000
Intercept	1.305	S_a	0.036	**Confidence interval**	
		S_b	0.177	3.60 ± 0.075	
		S_c	0.671		

TABLE A-83 SUMMARY OF DATA FROM TEST NO. 46

Page 1 of 5

Degreaser B, operating

Solvent: Methylene chloride

FB 50 % PC x SC - A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other Crosscurrent test

Date 3/29/79
Ambient air
Temperature 73 °F
Pressure 29.65 in. Hg
Humidity 50 %

Reading No.				1.	2.	3.
T, min	180388.000	180401.000	180405.000	180468.000	180528.000	180587.000
W, lb	2967.700	2966.000	2964.100	2961.500	2959.500	2957.400
ΔT, h					1.000	0.983
ΔW, lb					-2.000	-2.100
$\Sigma\Delta T$, h					1.000	1.983
$\Sigma\Delta W$, lb					-2.000	-4.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-2.000	-2.136
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-2.000	-2.067
$\bar{X}$, lb/h					-2.000	-2.034

TABLE A-83 (continued) Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	180647.000	180705.000	180772.000	180826.000	180886.000	180946.000
W, lb	2955.500	2953.300	2950.000	2948.500	2946.200	2944.000
ΔT, h	1.000	0.967	1.117	0.900	1.000	1.000
ΔW, lb	-1.900	-2.200	-3.300	-1.500	-2.300	-2.200
$\Sigma\Delta T$, h	2.983	3.950	5.067	5.967	6.967	7.967
$\Sigma\Delta W$, lb	-6.000	-8.200	-11.500	-13.000	-15.300	-17.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.900	-2.276	-2.955	-1.667	-2.300	-2.200
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.011	-2.076	-2.270	-2.179	-2.196	-2.197
$\bar{X}$, lb/h	-2.026	-2.039	-2.085	-2.100	-2.114	-2.124

(continued)

TABLE A-83 (continued)

Reading No.	10.	11.	12.	13.	14.	15.
T, min	181005.000	181061.000	181125.000	181184.000	181249.000	181313.000
W, lb	2941.000	2939.300	2937.000	2935.000	2932.900	2930.100
ΔT, h	0.983	0.933	1.067	0.983	1.083	1.067
ΔW, lb	-3.000	-1.700	-2.300	-2.000	-2.100	-2.800
$\Sigma\Delta T$, h	8.950	9.883	10.950	11.933	13.017	14.083
$\Sigma\Delta W$, lb	-20.500	-22.200	-24.500	-26.500	-28.600	-31.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.051	-1.821	-2.156	-2.034	-1.938	-2.625
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.291	-2.246	-2.237	-2.221	-2.197	-2.230
$\bar{X}$, lb/h	-2.143	-2.153	-2.161	-2.166	-2.168	-2.173

(continued)

TABLE A-83 (continued)

Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	181365.000	181424.000	181488.000	181553.000	181606.000	181671.000
W, lb	2928.500	2926.500	2924.600	2922.600	2920.700	2918.500
ΔT, h	0.867	0.983	1.067	1.083	0.883	1.083
ΔW, lb	-1.600	-2.000	-1.900	-2.000	-1.900	-2.200
ΣΔT, h	14.950	15.933	17.000	18.083	18.967	20.050
ΣΔW, lb	-33.000	-35.000	-36.900	-38.900	-40.800	-43.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.846	-2.034	-1.781	-1.846	-2.151	-2.031
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-2.207	-2.197	-2.171	-2.151	-2.151	-2.145
$\bar{X}$, lb/h	-2.175	-2.176	-2.176	-2.175	-2.173	-2.172

(continued)

TABLE A-83 (continued)

Page 5 of 5

Reading No.	22.	23.	24.	25.		
T, min	181730.000	181795.000	181849.000	181910.000	181938.000	182116.000
W, lb	2916.500	2914.400	2912.500	2910.100	2909.500	2909.000
ΔT, h	0.983	1.083	0.900	1.017		
ΔW, lb	-2.000	-2.100	-1.900	-2.400		
$\Sigma\Delta T$, h	21.033	22.117	23.017	24.033		
$\Sigma\Delta W$, lb	-45.000	-47.100	-49.000	-51.400		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.034	-1.938	-2.111	-2.361		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.139	-2.130	-2.129	-2.139		
$\bar{X}$, lb/h	-2.170	-2.169	-2.167	-2.166		

n 24

Slope -2.16

Intercept -0.437

S_{yx} 0.550

S_x 7.094

S_a 0.016

S_b 0.177

S_c 0.340

$t_{\alpha/2}$ 2.074

r -1.000

Confidence interval

2.16 ± 0.033

TABLE A-84 SUMMARY OF DATA FROM TEST NO. 47

Page 1 of 6

Degreaser B, operating

Solvent: Methylene chloride

Date 3/28/79
Ambient air
Temperature 68 °F
Pressure 29.68 in. Hg
Humidity 49 %

FB 50 %　PC x　SC ____　A 50 %
Inlet air x　Exhaust air x　V 8 ft/min
Other Tests Numbers 45 and 47 were run simultaneously; crosscurrent test

Reading No.				1.	2.	3.
T, min	178475.000	178570.000	178573.000	178608.000	178678.000	178721.000
W, lb	3008.000	3004.100	3002.300	3000.500	2995.700	2992.500
ΔT, h					1.167	0.717
ΔW, lb					-4.800	-3.200
ΣΔT, h					1.167	1.883
ΣΔW, lb					-4.800	-8.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-4.114	-4.465
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-4.114	-4.248
$\bar{X}$, lb/h					-4.114	-4.181

TABLE A-84 (continued)

Page 2 of 6

Reading No.	4.	5.	6.	7.	8.	9.
T, min	178788.000	178849.000	178910.000	178969.000	179032.000	179090.000
W, lb	2987.000	2982.000	2977.300	2971.500	2967.500	2962.500
ΔT, h	1.117	1.017	1.017	0.983	1.050	0.967
ΔW, lb	-5.500	-5.000	-4.700	-5.800	-4.000	-5.000
$\Sigma\Delta T$, h	3.000	4.017	5.033	6.017	7.067	8.033
$\Sigma\Delta W$, lb	-13.500	-18.500	-23.200	-29.000	-33.000	-38.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-4.925	-4.918	-4.623	-5.898	-3.810	-5.172
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-4.500	-4.606	-4.609	-4.820	-4.670	-4.730
$\bar{X}$, lb/h	-4.287	-4.367	-4.415	-4.483	-4.510	-4.537

(continued)

TABLE A-84 (continued)

Reading No.	10.	11.	12.	13.	14.	15.
T, min	179148.000	179203.000	179265.000	179333.000	179387.000	179450.000
W, lb	2957.200	2953.000	2948.500	2942.250	2937.000	2932.500
ΔT, h	0.967	0.917	1.033	1.133	0.900	1.050
ΔW, lb	-5.300	-4.200	-4.500	-6.250	-5.250	-4.500
$\Sigma\Delta T$, h	9.000	9.917	10.950	12.083	12.983	14.033
$\Sigma\Delta W$, lb	-43.300	-47.500	-52.000	-58.250	-63.500	-68.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-5.483	-4.582	-4.355	-5.515	-5.833	-4.286
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-4.811	-4.790	-4.749	-4.821	-4.891	-4.846
$\bar{X}$, lb/h	-4.568	-4.590	-4.604	-4.622	-4.643	-4.657

(continued)

TABLE A-84 (continued) Page 4 of 6

Reading No.	16.	17.	18.	19.	20.	21.
T, min	179505.000	179568.000	179619.000	179689.000	179754.000	179800.000
W, lb	2927.500	2923.000	2919.000	2913.800	2908.200	2904.300
ΔT, h	0.917	1.050	0.850	1.167	1.083	0.767
ΔW, lb	-5.000	-4.500	-4.000	-5.200	-5.600	-3.900
ΣΔT, h	14.950	16.000	16.850	18.017	19.100	19.867
ΣΔW, lb	-73.000	-77.500	-81.500	-86.700	-92.300	-96.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-5.455	-4.286	-4.706	-4.457	-5.169	-5.087
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-4.883	-4.844	-4.837	-4.812	-4.832	-4.842
$\bar{X}$, lb/h	-4.672	-4.683	-4.692	-4.699	-4.706	-4.713

(continued)

TABLE A-84 (continued) **Page 5 of 6**

Reading No.	22.	23.	24.	25.	26.	
T, min	179865.000	179923.000	179988.000	180053.000	180076.000	180115.000
W, lb	2898.600	2894.100	2888.800	2884.800	2882.600	2881.100
ΔT, h	1.083	0.967	1.083	1.083	0.383	
ΔW, lb	-5.700	-4.500	-5.300	-4.000	-2.200	
$\Sigma\Delta T$, h	20.950	21.917	23.000	24.083	24.467	
$\Sigma\Delta W$, lb	-101.900	-106.400	-111.700	-115.700	-117.900	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-5.262	-4.655	-4.892	-3.692	-5.739	
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-4.864	-4.855	-4.857	-4.804	-4.819	
$\bar{X}$, lb/h	-4.720	-4.726	-4.732	-4.735	-4.738	

(continued)

TABLE A-84 (continued)

Page 6 of 6

Reading No.						
T, min	180254.000					
W, lb	2879.100					
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n	25	S_{yx}	0.494	$t_{\alpha/2}$	2.069
Slope	-4.887	S_x	7.309	r	-1.000
Intercept	0.961	S_a	0.014	**Confidence interval**	
		S_b	0.171	4.887 ± 0.029	
		S_c	0.607		

TABLE A-85 SUMMARY OF DATA FROM TEST NO. 48

Page 1 of 5

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 75 % PC x SC ______ A 50 %

Inlet air x Exhaust air x V 8 ft/min

Other

Crosscurrent test

Date 6/1/79

Ambient air

Temperature 74 °F

Pressure 29.75 in. Hg

Humidity 53 %

Reading No.				1.	2.	3.
T, min	288426.000	288434.000	288439.000	288480.000	288544.000	288606.000
W, lb	3599.500	3602.400	3604.000	3602.600	3598.500	3597.400
ΔT, h					1.067	1.033
ΔW, lb					-4.100	-1.100
ΣΔT, h					1.067	2.100
ΣΔW, lb					-4.100	-5.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-3.844	-1.065
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-3.844	-2.476
$\bar{X}$, lb/h					-3.844	-3.160

TABLE A-85 (continued)

Reading No.	4.	5.	6.	7.	8.	9.
T, min	288664.000	288724.000	288784.000	288852.000	288910.000	288970.000
W, lb	3594.100	3591.900	3590.600	3587.300	3584.800	3583.200
ΔT, h	0.967	1.000	1.000	1.133	0.967	1.000
ΔW, lb	-3.300	-2.200	-1.300	-3.300	-2.500	-1.600
ΣΔT, h	3.067	4.067	5.067	6.200	7.167	8.167
ΣΔW, lb	-8.500	-10.700	-12.000	-15.300	-17.800	-19.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.414	-2.200	-1.300	-2.912	-2.586	-1.600
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-2.772	-2.631	-2.368	-2.468	-2.484	-2.376
$\bar{X}$, lb/h	-3.031	-2.931	-2.818	-2.760	-2.720	-2.677

(continued)

TABLE A-85 (continued)

Reading No.	10.	11.	12.	13.	14.	15.
T, min	289030.000	289090.000	289150.000	289210.000	289270.000	289330.000
W, lb	3580.200	3578.400	3576.400	3572.300	3569.200	3566.000
ΔT, h	1.000	1.000	1.000	1.000	1.000	1.000
ΔW, lb	-3.000	-1.800	-2.000	-4.100	-3.100	-3.200
ΣΔT, h	9.167	10.167	11.167	12.167	13.167	14.167
ΣΔW, lb	-22.400	-24.200	-26.200	-30.300	-33.400	-36.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.000	-1.800	-2.000	-4.100	-3.100	-3.200
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.444	-2.380	-2.346	-2.490	-2.537	-2.584
$\bar{X}$, lb/h	-2.651	-2.624	-2.599	-2.590	-2.586	-2.586

(continued)

TABLE A-85 (continued) Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	289390.000	289448.000	289505.000	289568.000	289628.000	289685.000
W, lb	3563.400	3562.600	3561.200	3559.100	3558.800	3555.700
ΔT, h	1.000	0.967	0.950	1.050	1.000	0.950
ΔW, lb	-2.600	-0.800	-1.400	-2.100	-0.300	-3.100
ΣΔT, h	15.167	16.133	17.083	18.133	19.133	20.083
ΣΔW, lb	-39.200	-40.000	-41.400	-43.500	-43.800	-46.900
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.600	-0.828	-1.474	-2.000	-0.300	-3.263
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-2.585	-2.479	-2.423	-2.399	-2.289	-2.335
$\bar{X}$, lb/h	-2.586	-2.579	-2.570	-2.560	-2.546	-2.535

(continued)

TABLE A-85 (continued)

Page 5 of 5

Reading No.	22.	23.	24.	25.		
T, min	289745.000	289805.000	289865.000	289925.000	289955.000	289971.000
W, lb	3554.600	3551.700	3551.000	3549.900	3548.400	3547.600
ΔT, h	1.000	1.000	1.000	1.000		
ΔW, lb	-1.100	-2.900	-0.700	-1.100		
$\Sigma\Delta T$, h	21.083	22.083	23.083	24.083		
$\Sigma\Delta W$, lb	-48.000	-50.900	-51.600	-52.700		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.100	-2.900	-0.700	-1.100		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.277	-2.305	-2.235	-2.188		
$\bar{X}$, lb/h	-2.523	-2.513	-2.501	-2.488		

n 24

Slope -2.236

Intercept -1.941

S_{yx} 1.555

S_x 7.067

S_a 0.046

S_b 0.180

S_c 1.064

$t_{\alpha/2}$ 2.074

r -1.000

Confidence interval

2.236 ± 0.095

TABLE A-86 SUMMARY OF DATA FROM TEST NO. 48 Page 1 of 5

Degreaser C, operating

Solvent: 1,1,1-Trichloroethane

FB 75 % PC x SC ____ A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 6/12/79
Ambient air
Temperature 74 °F
Pressure 29.75 in. Hg
Humidity 53 %

Leakage of water into the degreaser was noted and corrected; test restarted at 208348

Reading No.						
T, min	288426.000	288436.000	288480.000	288544.000	288606.000	288664.000
W, lb	346.700	346.300	345.400	345.200	344.600	344.400
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

TABLE A-86 (continued)

Page 2 of 5

Reading No.				1.	2.	3.
T, min	288724.000	288784.000	288852.000	288910.000	288970.000	289030.000
W, lb	343.700	343.800	344.100	343.700	343.300	343.000
ΔT, h					1.000	1.000
ΔW, lb					0.400	0.300
ΣΔT, h					1.000	2.000
ΣΔW, lb					0.400	0.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					0.400	0.300
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h					0.400	0.350
$\bar{X}$, lb/h					0.400	0.350

(continued)

TABLE A-86 (continued)

Page 3 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	289090.000	289150.000	289210.000	289270.000	289330.000	289390.000
W, lb	342.500	342.100	341.600	341.100	340.600	340.100
ΔT, h	1.000	1.000	1.000	1.000	1.000	1.000
ΔW, lb	0.500	0.400	0.500	0.500	0.500	0.500
$\Sigma\Delta T$, h	3.000	4.000	5.000	6.000	7.000	8.000
$\Sigma\Delta W$, lb	1.200	1.600	2.100	2.600	3.100	3.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	0.500	0.400	0.500	0.500	0.500	0.500
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	0.400	0.400	0.420	0.433	0.443	0.450
$\bar{X}$, lb/h	0.383	0.388	0.394	0.401	0.407	0.412

(continued)

TABLE A-86 (continued)

Page 4 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	289448.000	289505.000	289568.000	289628.000	289685.000	289745.000
W, lb	339.800	339.400	339.000	339.000	338.300	337.900
ΔT, h	0.967	0.950	1.050	1.000	0.950	1.000
ΔW, lb	0.300	0.400	0.400	0.000	0.700	0.400
$\Sigma\Delta T$, h	8.967	9.917	10.967	11.967	12.917	13.917
$\Sigma\Delta W$, lb	3.900	4.300	4.700	4.700	5.400	5.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	0.310	0.421	0.381	0.000	0.737	0.400
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	0.435	0.434	0.429	0.393	0.418	0.417
$\bar{X}$, lb/h	0.415	0.416	0.418	0.416	0.416	0.416

(continued)

TABLE A-86 (continued)

Page 5 of 5

Reading No.	16.	17.	18.			
T, min	289805.000	289865.000	289925.000	289955.000	289971.000	
W, lb	337.100	336.900	336.500	335.900	337.100	
ΔT, h	1.000	1.000	1.000			
ΔW, lb	0.800	0.200	0.400			
$\Sigma\Delta T$, h	14.917	15.917	16.917			
$\Sigma\Delta W$, lb	6.600	6.800	7.200			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	0.800	0.200	0.400			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	0.442	0.427	0.426			
$\bar{X}$, lb/h	0.418	0.418	0.419			

n 17

Slope 0.429

Intercept -0.041

S_{yx} 0.152

S_x 5.016

S_a 0.008

S_b 0.258

S_c 0.182

$t_{\alpha/2}$ 2.13

r 0.999

Confidence interval

0.429 ± 0.017

TABLE A-87 SUMMARY OF DATA FROM TEST NO. 50

Page 1 of 2

Degreaser A, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 50 % PC x SC - A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 2/16,17/79
Ambient air
Temperature 58 °F
Pressure 30.08in. Hg
Humidity 31 %

Reading No.					1.	2.
T, min	121373.000	121398.000	121406.000	121413.000	121438.000	121482.000
W, lb	3597.400	3597.400	3597.600	3592.900	3593.100	3591.800
ΔT, h						0.733
ΔW, lb						-1.300
$\Sigma\Delta T$, h						0.733
$\Sigma\Delta W$, lb						-1.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						-1.773
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						-1.773
$\bar{X}$, lb/h						-1.773

TABLE A-87 (continued) Page 2 of 2

Reading No.	3.	4.	5.			
T, min	122257.000	122397.000	122536.000	122623.000		
W, lb	3580.000	3577.500	3575.200	3576.600		
ΔT, h	12.917	2.333	2.317			
ΔW, lb	-11.800	-2.500	-2.300			
$\Sigma\Delta T$, h	13.650	15.983	18.300			
$\Sigma\Delta W$, lb	-13.100	-15.600	-17.900			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.914	-1.071	-0.993			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-0.960	-0.976	-0.978			
$\bar{X}$, lb/h	-1.366	-1.236	-1.172			

n 4

Slope -0.939

Intercept -0.545

S_{yx} 0.229

S_x 7.855

S_a 0.017

S_b 1.050

S_c 0.395

$t_{\alpha/2}$ 4.303

r -1.000

Confidence interval

0.939 ± 0.073

TABLE A-88 SUMMARY OF DATA FROM TEST NO. 50

Page 1 of 2

Degreaser B, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___
FB 50 % PC x SC - A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 2/25/79
Ambient air
Temperature 58 °F
Pressure 30.08in. Hg
Humidity 31 %

Reading No.					1.	2.
T, min	121377.000	121402.000	121408.000	121417.000	121446.000	121485.000
W, lb	2911.300	2915.900	2913.600	2908.900	2907.400	2907.200
ΔT, h						0.650
ΔW, lb						-0.200
$\Sigma\Delta T$, h						0.650
$\Sigma\Delta W$, lb						-0.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						-0.308
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						-0.308
$\bar{X}$, lb/h						-0.308

TABLE A-88 (continued) Page 2 of 2

Reading No.	3.	4.	5.			
T, min	122261.000	122400.000	122531.000	122703.000		
W, lb	2893.400	2890.100	2888.800	2891.900		
ΔT, h	12.933	2.317	2.183			
ΔW, lb	-13.800	-3.300	-1.300			
$\Sigma \Delta T$, h	13.583	15.900	18.083			
$\Sigma \Delta W$, lb	-14.000	-17.300	-18.600			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.067	-1.424	-0.595			
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-1.031	-1.088	-1.029			
$\bar{X}$, lb/h	-0.669	-0.809	-0.864			

n 4

Slope -1.078

Intercept 0.466

S_{yx} 0.551

S_x 7.822

S_a 0.041

S_b 1.042

S_c 0.495

$t_{\alpha/2}$ 4.303

r -1.000

Confidence interval

1.078 ± 0.176

TABLE A-89 SUMMARY OF DATA FROM TEST NO. 51

Page 1 of 2

Degreaser A, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 50 % PC x SC - A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other Lid closed

Date 2/25/79
Ambient air
Temperature 67 °F
Pressure 29.64 in. Hg
Humidity 43 %

Reading No.					1.	2.
T, min	132995.000	133009.000	133017.000	133033.000	133330.000	134217.000
W, lb	3730.300	3729.400	3722.800	3724.500	3720.900	3711.800
ΔT, h						14.783
ΔW, lb						-9.100
ΣΔT, h						19.733
ΣΔW, lb						-12.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						-0.616
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						-0.644
$\bar{X}$, lb/h						-0.685

TABLE A-89 (continued)

Page 2 of 2

Reading No.						
T, min	134316.000					
W, lb	3713.700					
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n

Slope -0.644

Intercept

S_{yx}

S_x

S_a

S_b

$t_{\alpha/2}$

r

Confidence interval

TABLE A-90 SUMMARY OF DATA FROM TEST NO. 51 Page 1 of 2

Degreaser B, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 50 % PC x SC - A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other Lid closed

Date 2/25/79
Ambient air
Temperature 67 °F
Pressure 29.64 in. Hg
Humidity 43 %

Reading No.					1.	2.
T, min	132992.000	133005.000	133013.000	133033.000	133330.000	134217.000
W, lb	2961.800	2961.400	2957.200	2957.000	2952.800	2941.500
ΔT, h						14.783
ΔW, lb						-11.300
ΣΔT, h						19.733
ΣΔW, lb						-15.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						-0.764
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						-0.785
$\bar{X}$, lb/h						-0.817

TABLE A-90 (continued)

Page 2 of 2

Reading No.						
T, min	134365.000					
W, lb	2942.300					
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n		S_{yx}	$t_{\alpha/2}$	
Slope	0.785	S_x	r	
Intercept		S_a	Confidence interval	
		S_b		

TABLE A-91 SUMMARY OF DATA FROM TEST NO. 52

Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 50 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 2/22/79
Ambient air
Temperature 70 °F
Pressure 29.51 in. Hg
Humidity 49 %

Reading No.	1.	2.				
T, min	131228.000	132469.000				
W, lb	2931.400	2924.900				
ΔT, h		20.683				
ΔW, lb		-6.500				
ΣΔT, h		20.683				
ΣΔW, lb		-6.500				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.314				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-0.314				
$\bar{X}$, lb/h		-0.314				

TABLE A-92 SUMMARY OF DATA FROM TEST NO. 52

Page 1 of 1

Degreaser B, idle

Solvent: Methylene chloride
(Boiling ____; nonboiling x)
FB 50 % PC x SC ____ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 2/22/79
Ambient air
Temperature 70 °F
Pressure 29.51 in. Hg
Humidity 49 %

Reading No.	1.	2.				
T, min	131228.000	132469.000				
W, lb	3483.100	3473.200				
ΔT, h		20.683				
ΔW, lb		-9.900				
ΣΔT, h		20.683				
ΣΔW, lb		-9.900				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.479				
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h		-0.479				
$\bar{X}$, lb/h		-0.479				

TABLE A-93 SUMMARY OF DATA FROM TEST NO. 53

Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 50 % PC ___ SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other
Lid closed; solvent loss during cooldown period

Date 2/25/79
Ambient air
Temperature 68 °F
Pressure 29.29 in. Hg
Humidity 41 %

Reading No.	1.	2.				
T, min	134316.000	136934.000				
W, lb	3713.700	3699.400				
ΔT, h		43.633				
ΔW, lb		-14.300				
ΣΔT, h		43.633				
ΣΔW, lb		-14.300				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.328				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-0.328				
$\bar{X}$, lb/h		-0.328				

TABLE A-94 SUMMARY OF DATA FROM TEST NO. 53.

Page 1 of 1

Degreaser B, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 50 % PC ___ SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other
Lid closed

Date 2/25/79
Ambient air
Temperature 66 °F
Pressure 29.19 in. Hg
Humidity 41 %

Reading No.	1.	2.				
T, min	134365.000	136937.000				
W, lb	2942.300	2931.900				
ΔT, h		42.867				
ΔW, lb		-10.400				
ΣΔT, h		42.867				
ΣΔW, lb		-10.400				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.243				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-0.243				
$\bar{X}$, lb/h		-0.243				

TABLE A-95 SUMMARY OF DATA FROM TEST NO. 54 Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 50 % PC x SC x A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other Lid closed; solvent loss during cooldown period

Date 2/27,28/79
Ambient air
Temperature ___ °F
Pressure ___ in. Hg
Humidity ___ %

Reading No.				1.	2.	
T, min	136985.000	137005.000	137022.000	137055.000	138322.000	
W, lb	3701.100	3698.500	3696.400	3698.600	3686.500	
ΔT, h					21.117	
ΔW, lb					-12.100	
$\Sigma\Delta T$, h					21.117	
$\Sigma\Delta W$, lb					-12.100	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-0.573	
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-0.573	
$\bar{X}$, lb/h					-0.573	

TABLE A-96 SUMMARY OF DATA FROM TEST NO. 54

Page 1 of 1

Degreaser B, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 50 % PC x SC x A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other Lid closed

Date 2/27,28/79
Ambient air
Temperature ___ °F
Pressure ___ in. Hg
Humidity ___ %

Reading No.				1.	2.	
T, min	136986.000	137001.000	137018.000	137065.000	138324.000	
W, lb	2932.300	2928.600	2925.500	2926.900	2921.500	
ΔT, h					20.983	
ΔW, lb					-5.400	
ΣΔT, h					20.983	
ΣΔW, lb					-5.400	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-0.257	
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-0.257	
$\bar{X}$, lb/h					-0.257	

TABLE A-97 SUMMARY OF DATA FROM TEST NO. 57

Page 1 of 2

Degreaser A, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 50 % PC x SC x A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other
Solvent loss during cooldown period

Date 3/2/79
Ambient air
Temperature 69 °F
Pressure 29.82 in. Hg
Humidity 44.2 %

Reading No.					1.	2.
T, min	141045.000	141105.000	141167.000	141228.000	140925.000	140956.000
W, lb	3534.400	3533.700	3533.400	3532.750	3535.400	3535.000
ΔT, h						0.517
ΔW, lb						-0.400
ΣΔT, h						0.517
ΣΔW, lb						-0.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						-0.774
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						-0.774
$\bar{X}$, lb/h						-0.774

TABLE A-97 (continued) Page 2 of 2

Reading No.	3.	4.	5.	6.		
T, min	140986.000	141045.000	141280.000	142430.000		
W, lb	3534.700	3534.400	3532.100	3522.100		
ΔT, h	0.500	0.983	3.917	19.167		
ΔW, lb	-0.300	-0.300	-2.300	-10.000		
$\Sigma \Delta T$, h	1.017	2.000	5.917	25.083		
$\Sigma \Delta W$, lb	-0.700	-1.000	-3.300	-13.300		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.600	-0.305	-0.587	-0.522		
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-0.689	-0.500	-0.558	-0.530		
$\bar{X}$, lb/h	-0.731	-0.654	-0.630	-0.610		

n	5	S_{yx}	0.109	$t_{\alpha/2}$	3.182
Slope	-0.526	S_x	10.380	r	-1.000
Intercept	-0.104	S_a	0.005	**Confidence interval**	
		S_b	0.311	0.526 ± 0.015	
		S_c	0.169		

TABLE A-93 SUMMARY OF DATA FROM TEST NO. 57

Page 1 of 2

Degreaser B, idle

Solvent: Methylene chloride
(Boiling ____; nonboiling x)
FB 50 % PC x SC x A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/2/79
Ambient air
Temperature 69 °F
Pressure 29.82 in. Hg
Humidity 44.2 %

Reading No.					1.	2.
T, min	141045.000	141105.000	141167.000	141228.000	140925.000	140986.000
W, lb	2839.100	2838.400	2837.900	2836.750	2840.100	2839.600
ΔT, h						1.017
ΔW, lb						-0.500
ΣΔT, h						1.017
ΣΔW, lb						-0.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						-0.492
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h						-0.492
$\bar{X}$, lb/h						-0.492

TABLE A-98 (continued) Page 2 of 2

Reading No.	3.	4.	5.			
T, min	141045.000	141280.000	142430.000			
W, lb	2839.100	2836.050	2819.000			
ΔT, h	0.983	3.917	19.167			
ΔW, lb	-0.500	-3.050	-17.050			
ΣΔT, h	2.000	5.917	25.083			
ΣΔW, lb	-1.000	-4.050	-21.100			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.508	-0.779	-0.890			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-0.500	-0.685	-0.841			
$\bar{X}$, lb/h	-0.496	-0.559	-0.629			

n	4	S_{yx}	0.353	$t_{\alpha/2}$	4.303
Slope	-0.866	S_x	11.254	**r**	-1.000
Intercept	0.704	S_a	0.018	**Confidence interval**	
		S_b	0.440	0.866 ± 0.077	
		S_c	0.198		

TABLE A-99 SUMMARY OF DATA FROM TEST NO. 58

Page 1 of 3

Degreaser A, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 50 % PC x SC x A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/1/79
Ambient air
Temperature 68 °F
Pressure 29.825 in. Hg
Humidity 45 %

Reading No.				1.	2.	3.
T, min	139441.000	139464.000	139474.000	139503.000	139555.000	139618.000
W, lb	3568.500	3571.250	3566.000	3566.500	3565.500	3563.750
ΔT, h					0.867	1.050
ΔW, lb					-1.000	-1.750
ΣΔT, h					0.867	1.917
ΣΔW, lb					-1.000	-2.750
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.154	-1.667
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.154	-1.435
$\bar{X}$, lb/h					-1.154	-1.294

TABLE A-99 (continued)

Page 2 of 3

Reading No.	4.	5.	6.	7.	8.	9.
T, min	139680.000	139737.000	139798.000	139855.000	140814.000	140866.000
W, lb	3562.400	3561.200	3559.500	3558.250	3535.400	3534.250
ΔT, h	1.033	0.950	1.017	0.950	15.983	0.867
ΔW, lb	-1.350	-1.200	-1.700	-1.250	-22.850	-1.150
ΣΔT, h	2.950	3.900	4.917	5.867	21.850	22.717
ΣΔW, lb	-4.100	-5.300	-7.000	-8.250	-31.100	-32.250
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.306	-1.263	-1.672	-1.316	-1.430	-1.327
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.390	-1.359	-1.424	-1.406	-1.423	-1.420
$\bar{X}$, lb/h	-1.326	-1.334	-1.352	-1.361	-1.370	-1.376

(continued)

TABLE A-99 (continued)

Page 3 of 3

Reading No.						
T, min	140925.000	140956.000	140986.000	141045.000		
W, lb	3535.400	3535.000	3534.700	3534.400		
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n	8	S_{yx}	0.106	$t_{\alpha/2}$	2.447
Slope	-1.427	S_x	8.885	r	-1.000
Intercept	0.124	S_a	0.005	Confidence interval	
		S_b	0.244	1.427 ± 0.012	
		S_c	0.187		

TABLE A-100 SUMMARY OF DATA FROM TEST NO. 58

Page 1 of 3

Degreaser B, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 50 % PC x SC x A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/1/79
Ambient air
Temperature 68 °F
Pressure 29.825 in. Hg
Humidity 45 %

Reading No.			1.	2.	3.	4.
T, min	139441.000	139480.000	139503.000	139555.000	139618.000	139680.000
W, lb	2858.500	2857.250	2855.500	2854.750	2854.250	2853.250
ΔT, h				0.867	1.050	1.033
ΔW, lb				-0.750	-0.500	-1.000
$\Sigma\Delta T$, h				0.867	1.917	2.950
$\Sigma\Delta W$, lb				-0.750	-1.250	-2.250
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h				-0.865	-0.476	-0.968
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h				-0.865	-0.652	-0.763
$\bar{X}$, lb/h				-0.865	-0.759	-0.760

TABLE A-100 (continued)

Page 2 of 3

Reading No.	5.	6.	7.	8.	9.	10.
T, min	139737.000	139798.000	139855.000	140814.000	140842.000	140866.000
W, lb	2852.450	2852.000	2851.250	2841.050	2840.250	2840.000
ΔT, h	0.950	1.017	0.950	15.983	0.467	0.400
ΔW, lb	-0.800	-0.450	-0.750	-10.200	-0.800	-0.250
ΣΔT, h	3.900	4.917	5.867	21.850	22.317	22.717
ΣΔW, lb	-3.050	-3.500	-4.250	-14.450	-15.250	-15.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.842	-0.443	-0.789	-0.638	-1.714	-0.625
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-0.782	-0.712	-0.724	-0.661	-0.683	-0.682
$\bar{X}$, lb/h	-0.766	-0.755	-0.750	-0.737	-0.730	-0.725

(continued)

TABLE A-100 (continued)

Page 3 of 3

Reading No.						
T, min	140925.000	140986.000	141045.000			
W, lb	2840.100	2839.6000	2839.100			
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)_i$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)_i$, lb/h						
$\bar{X}$, lb/h						

n 9

Slope -0.666

Intercept -0.232

S_{yx} 0.203

S_x 9.563

S_a 0.008

S_b 0.240

S_c 0.380

$t_{\alpha/2}$ 2.365

r -1.000

Confidence interval

0.666 ± 0.019

TABLE A-101 SUMMARY OF DATA FROM TEST NO. 59

Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 50 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/3/79
Ambient air
Temperature 69 °F
Pressure 29.525 in.Hg
Humidity 45 %

Reading No.		1.	2.			
T, min	142482.000	142498.000	145559.000			
W, lb	3522.300	3522.100	3500.750			
ΔT, h			51.017			
ΔW, lb			-21.350			
ΣΔT, h			51.017			
ΣΔW, lb			-21.350			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			-0.418			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h			-0.418			
$\bar{X}$, lb/h			-0.418			

TABLE A-102 SUMMARY OF DATA FROM TEST NO. 59

Page 1 of 1

Degreaser B, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 50 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/3/79
Ambient air
Temperature 69 °F
Pressure 29.525 in. Hg
Humidity 45 %

Reading No.		1.	2.			
T, min	142482.000	142498.000	145559.000			
W, lb	2819.900	2820.000	2803.250			
ΔT, h			51.017			
ΔW, lb			-16.750			
ΣΔT, h			51.017			
ΣΔW, lb			-16.750			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			-0.328			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h			-0.328			
$\bar{X}$, lb/h			-0.328			

TABLE A-103 SUMMARY OF DATA FROM TEST NO. 60

Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 50 % FC x SC x A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/5/79
Ambient air
Temperature 69 °F
Pressure 29.51 in. Hg
Humidity 46.5 %

Reading No.		1.	2.			
T, min	145631.000	145676.000	146969.000			
W, lb	3500.250	3500.250	3490.400			
ΔT, h			21.550			
ΔW, lb			-9.850			
ΣΔT, h			22.300			
ΣΔW, lb			-9.850			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			-0.457			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h			-0.442			
$\bar{X}$, lb/h			-0.221			

Page 1 of 1

TABLE A-104 SUMMARY OF DATA FROM TEST NO. 60

Degreaser B, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 50 % PC x SC x A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/5/79
Ambient air
Temperature 69 °F
Pressure 29.51 in. Hg
Humidity 46.5 %

Reading No.		1.	2.			
T, min	145631.000	145676.000	146969.000			
W, lb	2802.500	2799.000	2782.750			
ΔT, h			21.550			
ΔW, lb			-16.250			
ΣΔT, h			22.300			
ΣΔW, lb			-19.750			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			-0.754			
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h			-0.886			
$\bar{X}$, lb/h			-2.776			

TABLE A-105 SUMMARY OF DATA FROM TEST NO. 61

Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 50 % PC ___ SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/6/79
Ambient air
Temperature 69 °F
Pressure 29.475 in. Hg
Humidity 45 %

Reading No.		1.	2.			
T, min	146995.000	147012.000	148354.000			
W, lb	3490.400	3481.400	3470.000			
ΔT, h			22.367			
ΔW, lb			-11.400			
ΣΔT, h			22.367			
ΣΔW, lb			-11.400			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/hr			-0.510			
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h			-0.510			
$\bar{X}$, lb/h			-0.510			

TABLE A-106 SUMMARY OF DATA FROM TEST NO. 61

Page 1 of 1

Degreaser B, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 50 % PC ___ SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/6/79
Ambient air
Temperature 69 °F
Pressure 29.475 in. Hg
Humidity 45 %

Reading No.		1.	2.			
T, min	146995.000	147012.000	148354.000			
W, lb	2784.000	2783.250	2772.600			
ΔT, h			22.367			
ΔW, lb			-10.650			
$\Sigma\Delta T$, h			22.367			
$\Sigma\Delta W$, lb			-10.650			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h			-0.476			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h			-0.476			
$\bar{X}$, lb/h			-0.476			

TABLE A-107 SUMMARY OF DATA FROM TEST NO. 62

Page 1 of 2

Degreaser A, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 50 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/7/79
Ambient air
Temperature 69 °F
Pressure 29.3 in. Hg
Humidity 45 %

Reading No.				1.	2.	
T, min	148481.000	148500.000	148515.000	148546.000	149486.000	149536.000
W, lb	3479.750	3479.000	3479.250	3478.000	3461.100	3460.750
ΔT, h					15.667	
ΔW, lb					-16.900	
$\Sigma\Delta T$, h					15.667	
$\Sigma\Delta W$, lb					-16.900	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.079	
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.079	
$\bar{X}$, lb/h					-1.079	

TABLE A-107 (continued)

Page 2 of 2

Reading No.						
T, min	149592.000	149658.000	149434.000			
W, lb	3460.000	3462.000	3461.000			
ΔT, h						
ΔW, lb						
ΣΔT, h						
ΣΔW, lb						
$\left(\frac{\Delta W}{\Delta T}\right)_,$ lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)_,$ lb/h						
$\bar{X}$, lb/h						

n

Slope 1.079

Intercept

S_{yx}

S_x

S_a

S_b

$t_{\alpha/2}$

r

Confidence interval

TABLE A-108 SUMMARY OF DATA FROM TEST NO. 62

Page 1 of 2

Degreaser B, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 50 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/7/79
Ambient air
Temperature 69 °F
Pressure 29.3 in. Hg
Humidity 45 %

Reading No.				1.	2.	
T, min	148481.000	148497.000	148515.000	148546.000	149486.000	149536.000
W, lb	2805.250	2804.650	2804.350	2799.250	2780.250	2779.550
ΔT, h					15.667	
ΔW, lb					-19.000	
ΣΔT, h					15.667	
ΣΔW, lb					-19.000	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.213	
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.213	
$\bar{X}$, lb/h					-1.213	

TABLE A-108 (continued)

Page 2 of 2

Reading No.						
T, min	149592.000	149658.000	149434.000			
W, lb	2778.600	2780.850	2790.400			
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n

Slope 1.213

Intercept

S_{yx}

S_x

S_a

S_b

$t_{\alpha/2}$

r

Confidence interval

TABLE A-109 SUMMARY OF DATA FROM TEST NO. 63

Page 1 of 2

Degreaser A, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 50 % PC x SC x A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/8/79
Ambient air
Temperature 70 °F
Pressure 29.3 in. Hg
Humidity 41 %

Reading No.			1.	2.	3.	4.
T, min	149846.000	149868.000	149896.000	149922.000	151097.000	151155.000
W, lb	3535.200	3529.600	3530.500	3529.450	3502.500	3501.200
ΔT, h				0.433	19.583	0.967
ΔW, lb				-1.050	-26.950	-1.300
ΣΔT, h				0.433	20.017	20.983
ΣΔW, lb				-1.050	-28.000	-29.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h				-2.423	-1.376	-1.345
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h				-2.423	-1.399	-1.396
$\bar{X}$, lb/h				-2.423	-1.911	-1.739

TABLE A-109 (continued)

Page 2 of 2

Reading No.	5.					
T, min	151243.000	151274.000	151336.000			
W, lb	3499.700	3498.850	3500.200			
ΔT, h	1.467					
ΔW, lb	-1.500					
$\Sigma\Delta T$, h	22.450					
$\Sigma\Delta W$, lb	-30.800					
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.023					
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.372					
$\bar{X}$, lb/h	-1.648					

n 4

Slope -1.365

Intercept -0.491

S_{yx} 0.297

S_x 10.407

S_a 0.016

S_b 1.035

S_c 0.609

$t_{\alpha/2}$ 4.303

r -1.000

Confidence interval

1.365 ± 0.069

TABLE A-110 SUMMARY OF DATA FROM TEST NO. 63

Page 1 of 2

Degreaser B, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 50 % PC x SC x A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/8/79
Ambient air
Temperature 60 °F
Pressure 29.3 in. Hg
Humidity 41 %

Reading No.			1.	2.	3.	4.
T, min	149846.000	149868.000	149896.000	149922.000	151097.000	151155.000
W, lb	3009.500	3005.500	3005.100	3003.050	2987.650	2987.150
ΔT, h				0.433	19.583	0.967
ΔW, lb				-2.050	-15.400	-0.500
ΣΔT, h				0.433	20.017	20.983
ΣΔW, lb				-2.050	-17.450	-17.950
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h				-4.731	-0.786	-0.517
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h				-4.731	-0.872	-0.855
$\bar{X}$, lb/h				-4.731	-2.801	-2.153

TABLE A-110 (continued)

Page 2 of 2

Reading No.	5.					
T, min	151243.000	151274.000	151336.000			
W, lb	2987.750	2987.500	2988.700			
ΔT, h	1.467					
ΔW, lb	0.600					
ΣΔT, h	22.450					
ΣΔW, lb	-17.350					
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	0.409					
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-0.773					
$\bar{X}$, lb/h	-1.808					

n 4

Slope -0.742

Intercept -1.846

S_{yx} 1.048

S_x 10.407

S_a 0.058

S_b 1.035

S_c 2.275

$t_{\alpha/2}$ 4.303

r -1.000

Confidence interval

0.742 ± 0.250

TABLE A-111 SUMMARY OF DATA FROM TEST NO. 64

Page 1 of 2

Degreaser A, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 75 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/10,11/79
Ambient air
Temperature 68 °F
Pressure 29.51 in. Hg
Humidity 42 %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	152628.000	152648.000	152657.000	152685.000	154024.000	154109.000
W, lb	3583.800	3581.900	3577.300	3577.800	3561.100	3562.600
ΔT, h		0.333	0.150	0.467	22.317	1.417
ΔW, lb		-1.900	-4.600	0.500	-16.700	1.500
ΣΔT, h		0.333	0.483	0.950	23.267	24.683
ΣΔW, lb		-1.900	-6.500	-6.000	-22.700	-21.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h'		-5.700	-30.667	1.071	-0.748	1.059
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h		-5.700	-13.448	-6.316	-0.976	-0.859
$\bar{X}$, lb/h		-5.700	-9.574	-8.488	-6.610	-5.460

Page 2 of 2

TABLE A-111 (continued)

Reading No.						
T, min						
W, lb						
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n 5

Slope -0.732

Intercept -4.383

S_{yx} 2.207

S_x 12.821

S_a 0.086

S_b 0.350

S_c 13.518

$t_{\alpha/2}$ 3.182

r -1.000

Confidence interval

0.732 ± 0.274

TABLE A-112 SUMMARY OF DATA FROM TEST NO. 64

Page 1 of 2

Degreaser B, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 75 % PC x SC ___ A 0 % V 0 ft/min
Inlet air x Exhaust air x
Other

Date 3/10,11/79
Ambient air
Temperature 68 °F
Pressure 29.51 in. Hg
Humidity 42 %

Reading No.	1.	2.	3.	4.	5.	6.
T, min	152631.000	152645.000	152653.000	152682.000	154018.000	154189.000
W, lb	3042.800	3041.900	3038.300	3037.300	3013.300	3014.100
ΔT, h		0.233	0.133	0.483	22.267	2.850
ΔW, lb		-0.900	-3.600	-1.000	-24.000	0.800
ΣΔT, h		0.233	0.367	0.850	23.117	25.967
ΣΔW, lb		-0.900	-4.500	-5.500	-29.500	-28.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-3.857	-27.000	-2.069	-1.078	0.281
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-3.857	-12.273	-6.471	-1.276	-1.105
$\bar{X}$, lb/h		-3.857	-8.065	-7.533	-5.969	-4.996

Page 2 of 2

TABLE A-112 (continued)

Reading No.						
T, min						
W, lb						
ΔT, h						
ΔW, lb						
ΣΔT, h						
ΣΔW, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n	5	S_{yx}	2.346	$t_{\alpha/2}$	3.182
Slope	-1.052	S_x	13.218	r	-1.000
Intercept	-3.185	S_a	0.089	**Confidence interval**	
		S_b	0.346	1.052 ± 0.283	
		S_c	11.423		

TABLE A-113 SUMMARY OF DATA FROM TEST NO. 65 Page 1 of 2

Degreaser A, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 100 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/11,12/79
Ambient air
Temperature 68 °F
Pressure 29.51 in. Hg
Humidity 37 %

Reading No.	1.	2.	3.	4.		
T, min	154243.000	154256.000	154283.000	155533.000	155608.000	155595.000
W, lb	3615.300	3611.500	3610.600	3593.400	3594.450	3594.800
ΔT, h		0.217	0.450	20.833		
ΔW, lb		-3.800	-0.900	-17.200		
ΣΔT, h		0.217	0.667	21.500		
ΣΔW, lb		-3.800	-4.700	-21.900		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-17.538	-2.000	-0.826		
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h		-17.538	-7.050	-1.019		
$\bar{X}$, lb/h		-17.538	-12.294	-8.536		

TABLE A-113 (continued) Page 2 of 2

Reading No.						
T, min						
W, lb						
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n	3	S_{yx}	0.370	$t_{\alpha/2}$	12.706
Slope	-0.839	S_x	12.160	**r**	-1.000
Intercept	-3.877	S_a	0.021	**Confidence interval**	
		S_b	0.522	$0.839 \pm \left.\begin{matrix}1.106\\0.576\end{matrix}\right\}$	
		S_c	9.329		

TABLE A-114 SUMMARY OF DATA FROM TEST NO. 65

Page 1 of 2

Degreaser B, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 100 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/11,12/79
Ambient air
Temperature 68 °F
Pressure 29.51
Humidity 37 %

Reading No.	1.	2.	3.	4.		
T, min	154243.000	154253.000	154279.000	155533.000	155595.000	155656.000
W, lb	3086.000	3085.700	3086.100	3065.900	3068.400	3067.500
ΔT, h		0.167	0.433	20.900		
ΔW, lb		-0.300	0.400	-20.200		
ΣΔT, h		0.167	0.600	21.500		
ΣΔW, lb		-0.300	0.100	-20.100		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-1.800	0.923	-0.967		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-1.800	0.167	-0.935		
$\bar{X}$, lb/h		-1.800	-0.817	-0.856		

TABLE A-114 (continued)

Page 2 of 2

Reading No.						
T, min						
W, lb						
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n	3	S_{yx}	0.573	$t_{\alpha/2}$	12.706
Slope	-0.947	S_x	12.194	**r**	-1.000
Intercept	0.259	S_a	0.033	**Confidence interval**	
		S_b	0.519	0.947 ± 0.419	
		S_c	1.395		

TABLE A-115 SUMMARY OF DATA FROM TEST NO. 66

Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 100 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other Solvent loss during cooldown period

Date 3/12/79
Ambient air
Temperature 69.5 °F
Pressure 29.75 in. Hg
Humidity 37 %

Reading No.	1.	2.				
T, min	155608.000	156870.000				
W, lb	3594.450	3587.500				
ΔT, h		21.033				
ΔW, lb		-6.950				
ΣΔT, h		21.033				
ΣΔW, lb		-6.950				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h'		-0.330				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-0.330				
$\bar{X}$, lb/h		-0.330				

TABLE A-116 SUMMARY OF DATA FROM TEST NO. 66

Page 1 of 1

Degreaser B, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 100 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/12/79
Ambient air
Temperature 69.5 °F
Pressure 29.75 in. Hg
Humidity 37 %

Reading No.	1.	2.				
T, min	155656.000	156870.000				
W, lb	3067.500	3059.500				
ΔT, h		20.233				
ΔW, lb		-8.000				
ΣΔT, h		20.233				
ΣΔW, lb		-8.000				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.395				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-0.395				
$\bar{X}$, lb/h		-0.395				

TABLE A-117 SUMMARY OF DATA FROM TEST NO. 67

Page 1 of 2

Degreaser A, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 100 % PC x SC x A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/13/79
Ambient air
Temperature 70 °F
Pressure 29.45 in. Hg
Humidity 37 %

Reading No.				1.	2.	3.
T, min	156899.000	156912.000	156926.000	156956.000	157018.000	158334.000
W, lb	3587.500	3586.400	3581.00	3581.500	3580.700	3565.000
ΔT, h					1.033	21.933
ΔW, lb					-0.800	-15.700
$\Sigma\Delta T$, h					1.033	22.967
$\Sigma\Delta W$, lb					-0.800	-16.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-0.774	-0.716
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-0.774	-0.718
$\bar{X}$, lb/h					-0.774	-0.746

TABLE A-117 (continued) Page 2 of 2

Reading No.	4.					
T, min	158400.000	158426.000	158500.000	158558.000		
W, lb	3564.500	3564.150	3566.050	3565.700		
ΔT, h	1.100					
ΔW, lb	-0.500					
$\Sigma \Delta T$, h	24.067					
$\Sigma \Delta W$, lb	-17.000					
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.455					
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-0.706					
$\bar{X}$, lb/h	-0.733					

n	3	S_{yx}	0.198	$t_{\alpha/2}$	12.706
Slope	-0.709	S_x	12.992	**r**	-1.000
Intercept	-0.074	S_a	0.011	**Confidence interval**	
		S_b	1.094	0.709 ± 0.140	
		S_c	0.170		

TABLE A-118 SUMMARY OF DATA FROM TEST NO. 67

Page 1 of 2

Degreaser B, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 100 % PC x SC x A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/13/79
Ambient air
Temperature 70 °F
Pressure 29.45 in. Hg
Humidity 37 %

Reading No.				1.	2.	3.
T, min	156893.000	156912.000	156926.000	156956.000	157018.000	158334.000
W, lb	3059.700	3057.700	3054.100	3053.900	3053.500	3043.200
ΔT, h					1.033	21.933
ΔW, lb					-0.400	-10.300
ΣΔT, h					1.033	22.967
ΣΔW, lb					-0.400	-10.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-0.387	-0.470
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-0.387	-0.466
$\bar{X}$, lb/h					-0.387	-0.426

TABLE A-118 (continued)

Reading No.	4.					
T, min	158453.000	158482.000	158558.000			
W, lb	3041.200	3042.250	3042.900			
ΔT, h	1.983					
ΔW, lb	-2.000					
$\Sigma\Delta T$, h	24.950					
$\Sigma\Delta W$, lb	-12.700					
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.008					
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-0.509					
$\bar{X}$, lb/h	-0.454					

n 3

Slope -0.496

Intercept 0.156

S_{yx} 0.721

S_x 13.273

S_a 0.038

S_b 1.089

S_c 0.337

$t_{\alpha/2}$ 12.706

r -1.000

Confidence interval

$0.496 \pm \begin{matrix} 0.978 \\ 0.013 \end{matrix}\}$

TABLE A-119 SUMMARY OF DATA FROM TEST NO. 68

Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 100 % PC x SC x A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/14/79
Ambient air
Temperature 69 °F
Pressure 29.5 in. Hg
Humidity 38 %

Reading No.	1.	2.				
T, min	158500.000	159947.000				
W, lb	3566.050	3555.800				
ΔT, h		24.117				
ΔW, lb		-10.250				
ΣΔT, h		24.117				
ΣΔW, lb		-10.250				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.425				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-0.425				
$\bar{X}$, lb/h		-0.425				

TABLE A-120 SUMMARY OF DATA FROM TEST NO. 68

Page 1 of 1

Degreaser B, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 100 % PC x SC x
Inlet air x Exhaust air x
Other

A 0 %
V 0 ft/min

Date 3/14/79
Ambient air
Temperature 69 °F
Pressure 29.5 in. Hg
Humidity 38 %

Reading No.	1.	2.				
T, min	158558.000	159953.000				
W, lb	3042.900	3029.800				
ΔT, h		23.250				
ΔW, lb		-13.100				
$\Sigma\Delta T$, h		23.250				
$\Sigma\Delta W$, lb		-13.100				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.563				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-0.563				
$\bar{X}$, lb/h		-0.563				

TABLE A-121 SUMMARY OF DATA FROM TEST NO. 69

Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 125 % PC x SC ___
Inlet air x Exhaust air x
Other

A 0 %
V 0 ft/min

Date 3/15/79
Ambient air
Temperature 68.5 °F
Pressure 30.09 in. Hg
Humidity 38 %

Reading No.			1.	2.		
T, min	160026.000	160050.000	160075.000	161254.000	161327.000	
W, lb	3643.350	3639.000	3637.050	3621.350	3623.000	
ΔT, h				19.650		
ΔW, lb				-15.700		
ΣΔT, h				19.650		
ΣΔW, lb				-15.700		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h				-0.799		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h				-0.799		
$\bar{X}$, lb/h				-0.799		

TABLE A-122 SUMMARY OF DATA FROM TEST NO. 69

Page 1 of 1

Degreaser B, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 125 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/15/79
Ambient air
Temperature 68.5 °F
Pressure 30.09 in. Hg
Humidity 38 %

Reading No.			1.	2.		
T, min	160026.000	160050.000	160075.000	161254.000	161419.000	
W, lb	3106.800	3100.750	3100.750	3076.750	3078.500	
ΔT, h				19.650		
ΔW, lb				-24.000		
ΣΔT, h				19.650		
ΣΔW, lb				-24.000		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h				-1.221		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h				-1.221		
$\bar{X}$, lb/h				-1.221		

TABLE A-123 SUMMARY OF DATA FROM TEST NO. 70

Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 125 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other Solvent loss during cooldown period

Date 3/16/79
Ambient air
Temperature 69 °F
Pressure 30.12 in. Hg
Humidity 38 %

Reading No.	1.	2.	3.			
T, min	161327.000	162654.000	165601.000			
W, lb	3623.000	3616.500	3559.300			
ΔT, h		22.117	49.117			
ΔW, lb		-6.500	-57.200			
ΣΔT, h		22.117	71.233			
ΣΔW, lb		-6.500	-63.700			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.294	-1.165			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-0.294	-0.894			
$\bar{X}$, lb/h		-0.294	-0.594			

TABLE A-124 SUMMARY OF DATA FROM TEST NO. 70

Page 1 of 1

Degreaser B, idle

Solvent: Methylene chloride
(Boiling ____; nonboiling x)
FB 125 % PC x SC ____ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 3/16/79
Ambient air
Temperature 69 °F
Pressure 30.12 in. Hg
Humidity 38 %

Reading No.	1.	2.	3.			
T, min	161327.000	162654.000	165601.000			
W, lb	3078.500	3070.350	3030.400			
ΔT, h		22.117	49.117			
ΔW, lb		-8.150	-39.950			
ΣΔT, h		22.117	71.233			
ΣΔW, lb		-8.150	-48.100			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.369	-0.813			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-0.369	-0.675			
$\bar{X}$, lb/h		-0.369	-0.522			

Page 1 of 1

TABLE A-125 SUMMARY OF DATA FROM TEST NO. 71

Degreaser A, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 50 % PC ___ SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other
Lip exhaust at 16 ft^3/min per ft^2 of top opening

Date 3/22/79
Ambient air
Temperature ___ °F
Pressure ___ in. Hg
Humidity ___ %

Reading No.	1.	2.				
T, min	170497.000	171342.000				
W, lb	3598.700	3590.500				
ΔT, h		14.083				
ΔW, lb		-8.200				
$\Sigma\Delta T$, h		14.083				
$\Sigma\Delta W$, lb		-8.200				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.582				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-0.582				
$\bar{X}$, lb/h		-0.582				

TABLE A-126 SUMMARY OF DATA FROM TEST NO. 71

Page 1 of 1

Degreaser B, idle

Solvent: Methylene chloride
(Boiling ____; nonboiling x)
FB 50 % PC ____ SC ____ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Crosscurrent test

Date 3/22/79
Ambient air
Temperature ____ °F
Pressure ____ in. Hg
Humidity ____ %

Reading No.	1.	2.				
T, min	170497.000	171342.000				
W, lb	2779.600	2722.200				
ΔT, h		14.083				
ΔW, lb		-57.400				
ΣΔT, h		14.083				
ΣΔW, lb		-57.400				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-4.076				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-4.076				
$\bar{X}$, lb/h		-4.076				

TABLE A-127 SUMMARY OF DATA FROM TEST NO. 72

Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 50 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other Lip exhaust at 100 ft^3/min per ft^2 of top opening

Date 3/23/79
Ambient air
Temperature 69 °F
Pressure 28.81 in. Hg
Humidity 61 %

Reading No.				1.	2.	
T, min	171507.000	171525.000	171535.000	171581.000	172857.000	172910.000
W, lb	3763.000	3762.0000	3758.100	3755.700	3647.450	3647.850
ΔT, h					21.267	
ΔW, lb					-108.250	
ΣΔT, h					21.267	
ΣΔW, lb					-108.250	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-5.090	
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-5.090	
$\bar{X}$, lb/h					-5.090	

TABLE A-128 SUMMARY OF DATA FROM TEST NO. 72

Page 1 of 1

Degreaser B, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 50 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other
Crosscurrent test

Date 3/23/79
Ambient air
Temperature 69 °F
Pressure 28.81 in. Hg
Humidity 61 %

Reading No.				1.	2.	
T, min	171507.000	171526.000	171535.000	171581.000	172857.000	172994.000
W, lb	2977.500	2978.000	2973.800	2969.900	2793.300	2788.250
ΔT, h					21.267	
ΔW, lb					-176.600	
$\Sigma \Delta T$, h					21.267	
$\Sigma \Delta W$, lb					-176.600	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-8.304	
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h					-8.304	
$\bar{X}$, lb/h					-8.304	

TABLE A-129 SUMMARY OF DATA FROM TEST NO. 74

Page 1 of 5

Degreaser A, operating

Solvent: Methylene chloride

FB 75 % PC x SC ____ A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 4/15/79
Ambient air
Temperature 70 °F
Pressure 29.6 in. Hg
Humidity 52 %

Reading No.				1.	2.	3.
T, min	205141.000	205157.000	205163.000	205201.000	205265.000	205324.000
W, lb	3672.000	3671.100	3667.800	3665.600	3664.600	3663.900
ΔT, h					1.067	0.983
ΔW, lb					-1.000	-0.700
$\Sigma \Delta T$, h					1.067	2.050
$\Sigma \Delta W$, lb					-1.000	-1.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-0.937	-0.712
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h					-0.937	-0.829
$\bar{X}$, lb/h					-0.937	-0.883

TABLE A-129 (continued)

Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	205382.000	205440.000	205505.000	205564.000	205625.000	205684.000
W, lb	3661.500	3660.200	3658.500	3657.000	3655.900	3654.000
ΔT, h	0.967	0.967	1.083	0.983	1.017	0.983
ΔW, lb	-2.400	-1.300	-1.700	-1.500	-1.100	-1.900
$\Sigma\Delta T$, h	3.017	3.983	5.067	6.050	7.067	8.050
$\Sigma\Delta W$, lb	-4.100	-5.400	-7.100	-8.600	-9.700	-11.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.483	-1.345	-1.569	-1.525	-1.082	-1.932
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.359	-1.356	-1.401	-1.421	-1.373	-1.441
$\bar{X}$, lb/h	-1.042	-1.120	-1.177	-1.217	-1.240	-1.265

(continued)

TABLE A-129 (continued) Page 3 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	205745.000	205804.000	205864.000	205925.000	205985.000	206045.000
W, lb	3652.600	3651.500	3650.000	3648.800	3647.300	3645.900
ΔT, h	1.017	0.983	1.000	1.017	1.000	1.000
ΔW, lb	-1.400	-1.100	-1.500	-1.200	-1.500	-1.400
$\Sigma\Delta T$, h	9.067	10.050	11.050	12.067	13.067	14.067
$\Sigma\Delta W$, lb	-13.000	-14.100	-15.600	-16.800	-18.300	-19.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.377	-1.119	-1.500	-1.180	-1.500	-1.400
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.434	-1.403	-1.412	-1.392	-1.401	-1.400
$\bar{X}$, lb/h	-1.284	-1.295	-1.306	-1.313	-1.320	-1.326

(continued)

TABLE A-129 (continued) Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	206104.000	206164.000	206217.000	206286.000	206348.000	206401.000
W, lb	3645.100	3643.500	3642.600	3641.500	3640.100	3638.100
ΔT, h	0.983	1.000	0.883	1.150	1.033	0.883
ΔW, lb	-0.800	-1.600	-0.900	-1.100	-1.400	-2.000
$\Sigma\Delta T$, h	15.050	16.050	16.933	18.083	19.117	20.000
$\Sigma\Delta W$, lb	-20.500	-22.100	-23.000	-24.100	-25.500	-27.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.814	-1.600	-1.019	-0.957	-1.355	-2.264
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.362	-1.377	-1.358	-1.333	-1.334	-1.375
$\bar{X}$, lb/h	-1.328	-1.331	-1.333	-1.333	-1.333	-1.335

(continued)

TABLE A-129 (continued)

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Reading No.	22.	23.	24.	25.		
T, min	206461.000	206521.000	206584.000	206644.000	206672.000	206760.000
W, lb	3637.900	3636.500	3634.900	3633.700	3633.400	3634.000
ΔT, h	1.000	1.000	1.050	1.000		
ΔW, lb	-0.200	-1.400	-1.600	-1.200		
$\Sigma\Delta T$, h	21.000	22.000	23.050	24.050		
$\Sigma\Delta W$, lb	-27.700	-29.100	-30.700	-31.900		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.200	-1.400	-1.524	-1.200		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.319	-1.323	-1.332	-1.326		
$\bar{X}$, lb/h	-1.334	-1.334	-1.334	-1.333		

n 24

Slope -1.336

Intercept -0.279

S_{yx} 0.529

S_x 7.067

S_a 0.016

S_b 0.179

S_c 0.480

$t_{\alpha/2}$ 2.074

r -1.000

Confidence interval

1.336 ± 0.033

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TABLE A-130 SUMMARY OF DATA FROM TEST NO. 74

Degreaser B, operating

Solvent: Methylene chloride

FB 75 % PC x SC ____ A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 4/15/79
Ambient air
Temperature 70 °F
Pressure 29.60 in. Hg
Humidity 52 %

Reading No.				1.	2.	3.
T, min	205141.	205154.	205161.	205201.000	205265.000	205324.000
W, lb	3028.600	3028.600	3021.300	3022.800	3020.900	3018.800
ΔT, h					1.067	0.983
ΔW, lb					-1.900	-2.100
ΣΔT, h					1.067	2.050
ΣΔW, lb					-1.900	-4.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.781	-2.136
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.781	-1.951
$\bar{X}$, lb/h					-1.781	-1.866

TABLE A-130 (continued)

Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	205382.000	205440.000	205505.000	205564.000	205625.000	205684.000
W, lb	3017.000	3015.500	3012.600	3010.700	3009.000	3007.000
ΔT, h	0.967	0.967	1.083	0.983	1.017	0.983
ΔW, lb	-1.800	-1.500	-2.900	-1.900	-1.700	-2.000
$\Sigma\Delta T$, h	3.017	3.983	5.067	6.050	7.067	8.050
$\Sigma\Delta W$, lb	-5.800	-7.300	-10.200	-12.100	-13.800	-15.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.862	-1.552	-2.677	-1.932	-1.672	-2.034
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.923	-1.833	-2.013	-2.000	-1.953	-1.963
$\bar{X}$, lb/h	-1.885	-1.872	-1.900	-1.917	-1.922	-1.927

(continued)

TABLE A-130 (continued) Page 3 of 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	205745.000	205804.000	205864.000	205925.000	205985.000	206045.000
W, lb	3005.000	3003.000	3001.200	2999.500	2997.500	2995.900
ΔT, h	1.017	0.983	1.000	1.017	1.000	1.000
ΔW, lb	-2.000	-2.000	-1.800	-1.700	-2.000	-1.600
ΣΔT, h	9.067	10.050	11.050	12.067	13.067	14.067
ΣΔW, lb	-17.800	-19.800	-21.600	-23.300	-25.300	-26.900
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.967	-2.034	-1.800	-1.672	-2.000	-1.600
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.963	-1.970	-1.955	-1.931	-1.936	-1.912
$\bar{X}$, lb/h	-1.931	-1.935	-1.937	-1.936	-1.936	-1.935

(continued)

TABLE A-130 (continued)

Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	206104.000	206164.000	206217.000	206286.000	206348.000	206401.000
W, lb	2994.000	2991.900	2990.500	2988.400	2986.400	2984.600
ΔT, h	0.983	1.000	0.883	1.150	1.033	0.883
ΔW, lb	-1.900	-2.100	-1.400	-2.100	-2.000	-1.800
$\Sigma\Delta T$, h	15.050	16.050	16.933	18.083	19.117	20.000
$\Sigma\Delta W$, lb	-28.800	-30.900	-32.300	-34.400	-36.400	-38.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.932	-2.100	-1.565	-1.826	-1.935	-2.038
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.914	-1.925	-1.907	-1.902	-1.904	-1.910
$\bar{X}$, lb/h	-1.933	-1.933	-1.931	-1.930	-1.928	-1.927

(continued)

TABLE A-130 (continued)

Page 5 of 5

Reading No.	22.	23.	24.	25.		
T, min	206461.000	206521.000	206584.000	206644.000	206672.000	206845.000
W, lb	2982.600	2980.100	2978.300	2976.100	2975.700	2977.000
ΔT, h	1.000	1.000	1.050	1.000		
ΔW, lb	-2.000	-2.500	-1.800	-2.200		
$\Sigma\Delta T$, h	21.000	22.000	23.050	24.050		
$\Sigma\Delta W$, lb	-40.200	-42.700	-44.500	-46.700		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.000	-2.500	-1.714	-2.200		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.914	-1.941	-1.931	-1.942		
$\bar{X}$, lb/h	-1.927	-1.927	-1.928	-1.928		

n	24	S_{yx}	0.298	$t_{\alpha/2}$	2.074
Slope	-1.917	S_x	7.067	**r**	-1.000
Intercept	-0.145	S_a	0.009	**Confidence interval**	
		S_b	0.179	1.917 ± 0.019	
		S_c	0.270		

TABLE A-131 SUMMARY OF DATA FROM TEST NO. 75

Page 1 of 5

Degreaser A, operating

Solvent: Methylene chloride

FB 75 % PC x SC ____ A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 4/17,18/79
Ambient air
Temperature 70 °F
Pressure 29.81 in. Hg
Humidity 41 %

Reading No.				1.	2.	3.
T, min	207239.000	207247.000	207255.000	207270.000	207331.000	207391.000
W, lb	3642.700	3642.000	3638.500	3638.900	3637.300	3635.600
ΔT, h					1.017	1.000
ΔW, lb					-1.600	-1.700
$\Sigma\Delta T$, h					1.017	2.017
$\Sigma\Delta W$, lb					-1.600	-3.900
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.574	-1.700
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.574	-1.636
$\bar{X}$, lb/h					-1.574	-1.605

TABLE A-131 (continued)

Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	207451.000	207511.000	207571.000	207631.000	207697.000	207764.000
W, lb	3633.800	3632.700	3630.900	3629.400	3628.000	3625.700
ΔT, h	1.000	1.000	1.000	1.000	1.100	1.117
ΔW, lb	-1.800	-1.100	-1.800	-1.500	-1.400	-2.300
$\Sigma\Delta T$, h	3.017	4.017	5.017	6.017	7.117	8.233
$\Sigma\Delta W$, lb	-5.100	-6.200	-8.000	-9.500	-10.900	-13.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.800	-1.100	-1.800	-1.500	-1.273	-2.060
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.691	-1.544	-1.595	-1.579	-1.532	-1.603
$\bar{X}$, lb/h	-1.634	-1.611	-1.608	-1.603	-1.593	-1.594

(continued)

TABLE A-131 **(continued)** **Page** 3 **of** 5

Reading No.	10.	11.	12.	13.	14.	15.
T, min	207817.000	207873.000	207938.000	207996.000	208054.000	208113.000
W, lb	3624.700	3623.800	3620.500	3619.500	3618.200	3616.200
ΔT, h	0.883	0.933	1.083	0.967	0.967	0.983
ΔW, lb	-1.000	-0.900	-3.300	-1.000	-1.300	-2.000
$\Sigma\Delta T$, h	9.117	10.050	11.133	12.100	13.067	14.050
$\Sigma\Delta W$, lb	-14.200	-15.100	-18.400	-19.400	-20.700	-22.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.132	-0.964	-3.046	-1.034	-1.345	-2.034
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.558	-1.502	-1.653	-1.603	-1.584	-1.616
$\bar{X}$, lb/h	-1.590	-1.581	-1.588	-1.589	-1.589	-1.591

(continued)

TABLE A-131 (continued) Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	208178.000	208237.000	208296.000	208354.000	208413.000	208473.000
W, lb	3614.700	3613.000	3611.400	3610.200	3608.800	3606.700
ΔT, h	1.083	0.983	0.983	0.967	0.983	1.000
ΔW, lb	-1.500	-1.700	-1.600	-1.200	-1.400	-2.100
$\Sigma\Delta T$, h	15.133	16.117	17.100	18.067	19.050	20.050
$\Sigma\Delta W$, lb	-24.200	-25.900	-27.500	-28.700	-30.100	-32.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.385	-1.729	-1.627	-1.241	-1.424	-2.100
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.599	-1.607	-1.608	-1.589	-1.580	-1.606
$\bar{X}$, lb/h	-1.591	-1.592	-1.593	-1.593	-1.592	-1.593

(continued)

TABLE A-131 (continued) **Page 5 of 5**

Reading No.	22.	23.	24.	25.		
T, min	208532.000	208593.000	208653.000	208713.000	208798.000	
W, lb	3605.500	3603.500	3602.000	3600.400	3601.500	
ΔT, h	0.983	1.017	1.000	1.000		
ΔW, lb	-1.200	-2.000	-1.500	-1.600		
ΣΔT, h	21.033	22.050	23.050	24.050		
ΣΔW, lb	-33.400	-35.400	-36.900	-38.500		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.220	-1.967	-1.500	-1.600		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.588	-1.605	-1.601	-1.601		
$\bar{X}$, lb/h	-1.593	-1.593	-1.594	-1.594		

n 24

Slope -1.603

Intercept 0.102

S_{yx} 0.312

S_x 7.076

S_a 0.009

S_b 0.179

S_c 0.453

$t_{\alpha/2}$ 2.074

r -1.000

Confidence interval

1.603 ± 0.019

TABLE A-132 SUMMARY OF DATA FROM TEST NO. 75

Page 1 of 5

Degreaser B, operating

Solvent: Methylene chloride

FB 75 % PC x SC x A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 4/17/79
Ambient air
Temperature 70 °F
Pressure 29.81 in. Hg
Humidity 41 %

Reading No.				1.	2.	3.
T, min	207239.000	207244.000	207251.000	207270.000	207331.000	207391.000
W, lb	3028.400	3029.600	3027.400	3027.800	3028.300	3026.500
ΔT, h					1.017	1.000
ΔW, lb					0.500	-1.800
ΣΔT, h					1.017	2.017
ΣΔW, lb					0.500	-1.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					0.492	-1.800
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					0.492	-0.645
$\bar{X}$, lb/h					0.492	-0.076

TABLE A-132 (continued)

Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	207451.000	207511.000	207571.000	207631.000	207697.000	207764.000
W, lb	3025.300	3022.600	3021.800	3020.000	3020.400	3019.400
ΔT, h	1.000	1.000	1.000	1.000	1.100	1.117
ΔW, lb	-1.200	-2.700	-0.800	-1.800	0.400	-1.000
ΣΔT, h	3.017	4.017	5.017	6.017	7.117	8.233
ΣΔW, lb	-2.500	-5.200	-6.000	-7.800	-7.400	-8.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.200	-2.700	-0.800	-1.800	0.364	-0.896
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-0.829	-1.295	-1.196	-1.296	-1.040	-1.020
$\bar{X}$, lb/h	-0.327	-0.569	-0.694	-0.795	-0.830	-0.854

(continued)

TABLE A-132 (continued)

Reading No.	10.	11.	12.	13.	14.	15.
T, min	207817.000	207873.000	207938.000	207996.000	208054.000	208113.000
W, lb	3016.600	3015.100	3015.700	3013.900	3011.700	3010.500
ΔT, h	0.883	0.933	1.083	0.967	0.967	0.983
ΔW, lb	-2.800	-1.500	0.600	-1.800	-2.200	-1.200
ΣΔT, h	9.117	10.050	11.133	12.100	13.067	14.050
ΣΔW, lb	-11.200	-12.700	-12.100	-13.900	-16.100	-17.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.170	-1.607	0.554	-1.862	-2.276	-1.220
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.229	-1.264	-1.087	-1.149	-1.232	-1.231
$\bar{X}$, lb/h	-0.895	-0.932	-0.946	-0.963	-0.984	-1.001

(continued)

TABLE A-132 (continued)

Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	208178.000	208237.000	208296.000	208354.000	208413.000	208473.000
W, lb	3011.000	3009.100	3007.000	3005.000	3003.700	3004.100
ΔT, h	1.083	0.983	0.983	0.967	0.983	1.000
ΔW, lb	0.500	-1.900	-2.100	-2.000	-1.300	0.400
ΣΔT, h	15.133	16.117	17.100	18.067	19.050	20.050
ΣΔW, lb	-16.800	-18.700	-20.800	-22.800	-24.100	-23.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	0.462	-1.932	-2.136	-2.069	-1.322	0.400
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.110	-1.160	-1.216	-1.262	-1.265	-1.182
$\bar{X}$, lb/h	-1.009	-1.018	-1.030	-1.043	-1.054	-1.061

(continued)

TABLE A-132 (continued) **Page** 5 **of** 5

Reading No.	22.	23.	24.	25.		
T, min	208532.000	208593.000	208653.000	208713.000	208931.000	
W, lb	3002.000	2999.500	2998.500	2997.300	2997.000	
ΔT, h	0.983	1.017	1.000	1.000		
ΔW, lb	-2.100	-2.500	-1.000	-1.200		
$\Sigma\Delta T$, h	21.033	22.050	23.050	24.050		
$\Sigma\Delta W$, lb	-25.800	-28.300	-29.300	-30.500		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.136	-2.459	-1.000	-1.200		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.227	-1.283	-1.271	-1.268		
$\bar{X}$, lb/h	-1.069	-1.078	-1.087	-1.094		

n 24

Slope -1.299

Intercept 1.233

S_{yx} 0.835

S_x 7.076

S_a 0.025

S_b 0.179

S_c 1.083

$t_{\alpha/2}$ 2.074

r -1.000

Confidence interval

1.299 ± 0.052

TABLE A-133 SUMMARY OF DATA FROM TEST NO. 76

Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 75 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other Lip exhaust at 50 ft^3/min per ft^2 top opening

Date 4/25/79
Ambient air
Temperature 72 °F
Pressure 29.4 in. Hg
Humidity 66 %

Reading No.			1.	2.		
T, min	218936.000	218958.000	218966.000	220090.000	220142.000	
W, lb	3788.100	3786.200	3780.500	3749.400	3750.300	
ΔT, h				18.733		
ΔW, lb				-31.100		
ΣΔT, h				18.733		
ΣΔW, lb				-31.100		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h				-1.660		
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h				-1.660		
$\bar{X}$, lb/h				-1.660		

TABLE A-134 SUMMARY OF DATA FROM TEST NO. 76

Page 1 of 1

Degreaser B, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 75 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 4/25,26/79
Ambient air
Temperature 72 °F
Pressure 29.4 in. Hg
Humidity 66 %

Reading No.			1.	2.		
T, min	218936.000	218954.000	218963.000	220090.000	220297.000	
W, lb	2954.200	2953.600	2952.000	2927.800	2828.500	
ΔT, h				18.783		
ΔW, lb				-24.200		
ΣΔT, h				18.783		
ΣΔW, lb				-24.200		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h				-1.288		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h				-1.288		
$\bar{X}$, lb/h				-1.288		

TABLE A-135 SUMMARY OF DATA FROM TEST NO. 77

Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling ___)
FB 75 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other Lip exhaust at 100 ft^3/min per ft^2 top opening

Date 4/26/79
Ambient air
Temperature - °F
Pressure 29.10 in. Hg
Humidity 65 %

Reading No.			1.	2.		
T, min	220347.000	220378.000	220389.000	221529.000	221606.000	
W, lb	3747.000	3746.500	3742.100	3701.300	3701.900	
ΔT, h				19.000		
ΔW, lb				-40.800		
ΣΔT, h				19.000		
ΣΔW, lb				-40.800		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h				-2.147		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h				-2.147		
$\bar{X}$, lb/h				-2.147		

TABLE A-136 SUMMARY OF DATA FROM TEST NO. 77

Page 1 of 1

Degreaser B, idle

Solvent: Methylene chloride
(Boiling x ; nonboiling)
FB 75 % PC x SC A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other
Crosscurrent test

Date 4/26/79
Ambient air
Temperature - °F
Pressure 29.10 in. Hg
Humidity 65 %

Reading No.			1.	2.		
T, min	220347.000	220376.000	220381.000	221529.000	221735.000	
W, lb	2926.500	2926.200	2924.500	2830.300	2830.000	
ΔT, h				19.133		
ΔW, lb				-94.200		
$\Sigma\Delta T$, h				19.133		
$\Sigma\Delta W$, lb				-94.200		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h				-4.923		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h				-4.923		
$\bar{X}$, lb/h				-4.923		

TABLE A-137 SUMMARY OF DATA FROM TEST NO. 78a

Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB ___ % PC x SC ___ A ___ %
Inlet air ___ Exhaust air ___ V ___ ft/min
Other
Lid closed; inlet air was turned on about 3 hours after test started

Date 5/8/79
Ambient air
Temperature 77 °F
Pressure 29.50 in. Hg
Humidity 59 %

Reading No.	1.	2.				
T, min	237417.000	238694.000				
W, lb	3607.100	3602.400				
ΔT, h		21.283				
ΔW, lb		4.700				
ΣΔT, h		21.283				
ΣΔW, lb		4.700				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		0.221				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		0.221				
$\bar{X}$, lb/h		0.221				

TABLE A-138 SUMMARY OF DATA FROM TEST NO. 78a

Page 1 of 1

Degreaser B, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB ___ % PC x SC ___ A 0 %
Inlet air ___ Exhaust air ___ V 0 ft/min
Other lid closed

Date 5/8/79
Ambient air
Temperature 77 °F
Pressure 29.50 in. Hg
Humidity 59 %

Reading No.	1.	2.				
T, min	237417.000	238694.000				
W, lb	2647.100	2642.000				
ΔT, h		21.283				
ΔW, lb		5.100				
ΣΔT, h		21.283				
ΣΔW, lb		5.100				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		0.240				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		0.240				
$\bar{X}$, lb/h		0.240				

TABLE A-139 SUMMARY OF DATA FROM TEST NO. 78b

Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 50 % PC x SC ___ A 0 %
Inlet air ___ Exhaust air ___ V 0 ft/min
Other Lid closed

Date 5/9/79
Ambient air
Temperature 60 °F
Pressure 29.50 in. Hg
Humidity 75 %

Reading No.	1.	2.				
T, min	238736.000	240138.000				
W, lb	3602.400	3598.800				
ΔT, h		23.367				
ΔW, lb		3.600				
ΣΔT, h		23.367				
ΣΔW, lb		3.600				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		0.154				
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h		0.154				
$\bar{X}$, lb/h		0.154				

TABLE A-140 SUMMARY OF DATA FROM TEST NO. 78b

Page 1 of 1

Degreaser B, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 50 % PC ___ SC ___ A 0 %
Inlet air ___ Exhaust air ___ V 0 ft/min
Other Lid closed

Date 5/9/79
Ambient air
Temperature 60 °F
Pressure 29.50 in. Hg
Humidity 75 %

Reading No.	1	2				
T, min	238736.000	240138.000				
W, lb	2642.000	2636.100				
ΔT, h		23.367				
ΔW, lb		5.900				
ΣΔT, h		23.367				
ΣΔW, lb		5.900				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		0.252				
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h		0.252				
$\bar{X}$, lb/h		0.252				

TABLE A-141 SUMMARY OF DATA FROM TEST NO. 79

Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 125 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 5/10/79
Ambient air
Temperature 70 °F
Pressure 29.50 in. Hg
Humidity 75 %

Reading No.	1.	2.				
T, min	240377.000	241587.000				
W, lb	3615.600	3605.500				
ΔT, h		20.167				
ΔW, lb		10.100				
$\Sigma\Delta T$, h		20.167				
$\Sigma\Delta W$, lb		10.100				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		0.501				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		0.501				
$\bar{X}$, lb/h		0.501				

TABLE A-142 SUMMARY OF DATA FROM TEST NO. 79

Page 1 of 1

Degreaser B, idle.

Solvent: Methylene chloride
(Boiling ____; nonboiling x)
FB ____ % PC x SC ____ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 5/10/79
Ambient air
Temperature 70 °F
Pressure 29.50 in. Hg
Humidity 75 %

Reading No.	1.	2.				
T, min	240377.000	241587.000				
W, lb	2811.600	2803.000				
ΔT, h		20.167				
ΔW, lb		8.600				
ΣΔT, h		20.167				
ΣΔW, lb		8.600				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		0.426				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		0.426				
$\bar{X}$, lb/h		0.426				

TABLE A-143 SUMMARY OF DATA FROM TEST NO. 80

Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 100 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 5/11/79
Ambient air
Temperature 70 °F
Pressure 29.46 in. Hg
Humidity 70 %

Reading No.						
T, min	241672.000	245910.000				
W, lb	3517.800	3486.300				
ΔT, h		70.633				
ΔW, lb		31.500				
ΣΔT, h		70.633				
ΣΔW, lb		31.500				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		0.446				
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h		0.446				
$\bar{X}$, lb/h		0.446				

TABLE A-144 SUMMARY OF DATA FROM TEST NO. 80

Page 1 of 1

Degreaser B, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 100 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 5/11/79
Ambient air
Temperature 70 °F
Pressure 29.46 in. Hg
Humidity 70 %

Reading No.						
T, min	241672.000	245910.000				
W, lb	2729.800	2703.500				
ΔT, h		70.633				
ΔW, lb		26.300				
ΣΔT, h		70.633				
ΣΔW, lb		26.300				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		0.372				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		0.372				
$\bar{X}$, lb/h		0.372				

TABLE A-145 SUMMARY OF DATA FROM TEST NO. 81

Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 75 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other Lid closed

Date 5/14/79
Ambient air
Temperature 69 °F
Pressure 29.65 in. Hg
Humidity 53 %

Reading No.	1.	2.				
T, min	246040.000	247360.000				
W, lb	3643.100	3637.700				
ΔT, h		22.000				
ΔW, lb		-5.400				
$\Sigma\Delta T$, h		22.000				
$\Sigma\Delta W$, lb		-5.400				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.245				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-0.245				
$\bar{X}$, lb/h		-0.245				

TABLE A-146 SUMMARY OF DATA FROM TEST NO. 81 Page 1 of 1

Degreaser B, idle

Solvent: Methylene chloride
(Boiling ____; nonboiling x)
FB 75 % PC x SC ____ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other
Lid closed

Date 5/14/79
Ambient air
Temperature 69 °F
Pressure 29.65 in. Hg
Humidity 53 %

Reading. No.	1.	2.				
T, min	246040.000	247360.000				
W, lb	2661.900	2653.900				
ΔT, h		22.000				
ΔW, lb		-8.000				
ΣΔT, h		22.000				
ΣΔW, lb		-8.000				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.364				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-0.364				
$\bar{X}$, lb/h		-0.364				

TABLE A-147 SUMMARY OF DATA FROM TEST NO. 82

Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 75 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 5/15/79
Ambient air
Temperature 73 °F
Pressure 29.74 in. Hg
Humidity 51 %

Reading No.						
T, min	247608.000	248772.000				
W, lb	3636.700	3628.100				
ΔT, h		19.400				
ΔW, lb		8.600				
ΣΔT, h		19.400				
ΣΔW, lb		8.600				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		0.443				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		0.443				
$\bar{X}$, lb/h		0.443				

TABLE A-148 SUMMARY OF DATA FROM TEST NO. 82

Page 1 of 1

Degreaser B, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 75 % PC x SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 5/15/79
Ambient air
Temperature 73 °F
Pressure 29.74 in. Hg
Humidity 51 %

Reading No.						
T, min	247608.000	248772.000				
W, lb	2650.100	2642.600				
ΔT, h		19.400				
ΔW, lb		7.500				
ΣΔT, h		19.400				
ΣΔW, lb		7.500				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		0.387				
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h		0.387				
$\bar{X}$, lb/h		0.387				

TABLE A-149 SUMMARY OF DATA FROM TEST NO. 83

Page 1 of 1

Degreaser A, idle

Solvent: Methylene chloride
(Boiling ___; nonboiling x)
FB 75 % PC x SC x A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 5/16/79
Ambient air
Temperature 72 °F
Pressure 29.95 in. Hg
Humidity 43 %

Reading No.	1.	2.			
T, min	248831.000	250207.000			
W, lb	3627.600	3614.700			
ΔT, h		22.933			
ΔW, lb		-12.900			
$\Sigma\Delta T$, h		22.933			
$\Sigma\Delta W$, lb		-12.900			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.563			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-0.563			
$\bar{X}$, lb/h		-0.563			

TABLE A-150 SUMMARY OF DATA FROM TEST NO. 83

Page 1 of 1

Degreaser B, idle

Solvent: Methylene chloride
(Boiling ____; nonboiling x)
FB 75 % PC x SC x A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 5/16/79
Ambient air
Temperature 72 °F
Pressure 29.95 in. Hg
Humidity 43 %

Reading No.	1.	2.				
T, min	248831.000	250207.000				
W, lb	2644.700	2630.200				
ΔT, h		22.933				
ΔW, lb		-14.500				
ΣΔT, h		22.933				
ΣΔW, lb		-14.500				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.632				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-0.632				
$\bar{X}$, lb/h		-0.632				

TABLE A-151 SUMMARY OF DATA FROM TEST NO. 84

Page 1 of 5

Degreaser A, operating

Solvent: Methylene chloride

FB 75 **%** **PC** x **SC** ____ **A** 50 **%**
Inlet air x **Exhaust air** x **V** 8 **ft/min**
Other Degreaser A run at 18 kW instead of 24 kW

Date 5/22,23/79
Ambient air
Temperature 72 **°F**
Pressure 29.66 in. Hg
Humidity 53 %

Reading No.				1.	2.	3.
T, min	257586.000	257593.000	257597.000	257627.000	257694.000	257752.000
W, lb	3571.200	3570.600	3571.000	3567.000	3565.000	3563.000
ΔT, h					1.117	0.967
ΔW, lb					-2.000	-2.000
$\Sigma\Delta T$, h					1.117	2.083
$\Sigma\Delta W$, lb					-2.000	-4.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.791	-2.069
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.791	-1.920
$\bar{X}$, lb/h					-1.791	-1.856

TABLE A-151 (continued)

Page 2 of 5

Reading No.	4.	5.	6.	7.	8.	9.
T, min	257808.000	257866.000	257930.000	257988.000	258057.000	258107.000
W, lb	3559.400	3558.800	3556.100	3554.400	3551.100	3549.100
ΔT, h	0.933	0.967	1.067	0.967	1.150	0.833
ΔW, lb	-3.600	-0.600	-2.700	-1.700	-3.300	-2.000
ΣΔT, h	3.017	3.983	5.050	6.017	7.167	8.000
ΣΔW, lb	-7.600	-8.200	-10.900	-12.600	-15.900	-17.900
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.857	-0.621	-2.531	-1.759	-2.870	-2.400
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.519	-2.059	-2.158	-2.094	-2.219	-2.238
$\bar{X}$, lb/h	-2.077	-2.072	-2.089	-2.090	-2.109	-2.125

(continued)

TABLE A-151 (continued)

Reading No.	10.	11.	12.	13.	14.	15.
T, min	258170.000	258228.000	258287.000	258343.000	258412.000	258468.000
W, lb	3548.200	3546.800	3542.600	3540.600	3539.000	3536.700
ΔT, h	1.050	0.967	0.983	0.933	1.150	0.933
ΔW, lb	-0.900	-1.400	-4.200	-2.000	-1.600	-2.300
ΣΔT, h	9.050	10.017	11.000	11.933	13.083	14.017
ΣΔW, lb	-18.800	-20.200	-24.400	-26.400	-28.000	-30.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.857	-1.448	-4.271	-2.143	-1.391	-2.464
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.077	-2.017	-2.218	-2.212	-2.140	-2.162
$\bar{X}$, lb/h	-2.119	-2.109	-2.119	-2.127	-2.128	-2.130

(continued)

TABLE A-151 (continued)

Reading No.	16.	17.	18.	19.	20.	21.
T, min	258528.000	258585.000	258646.000	258705.000	258773.000	258831.000
W, lb	3534.500	3532.900	3531.300	3529.100	3526.600	3524.500
ΔT, h	1.000	0.950	1.017	0.98[illegible]	1.133	0.967
ΔW, lb	-2.200	-1.600	-1.600	-2.200	-2.500	-2.100
$\Sigma\Delta T$, h	15.017	15.967	16.983	17.967	19.100	20.067
$\Sigma\Delta W$, lb	-32.500	-34.100	-35.700	-37.900	-40.400	-42.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.200	-1.684	-1.574	-2.237	-2.206	-2.172
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.164	-2.136	-2.102	-2.109	-2.115	-2.118
$\bar{X}$, lb/h	-2.133	-2.133	-2.131	-2.130	-2.129	-2.128

. . .

(continued)

TABLE A-151 (continued)

Page 5 of 5

Reading No.	22.	23.	24.	25.		
T, min	258889.000	258998.000	259007.000	259070.000	259099.000	259131.000
W, lb	3523.400	3520.800	3517.900	3516.500	3515.700	3517.500
ΔT, h	0.967	1.817	0.150	1.050		
ΔW, lb	-1.100	-2.600	-2.900	-1.400		
$\Sigma\Delta T$, h	21.033	22.850	23.000	24.050		
$\Sigma\Delta W$, lb	-43.600	-46.200	-49.100	-50.500		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.138	-1.431	-19.333	-1.333		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.073	-2.022	-2.135	-2.100		
$\bar{X}$, lb/h	-2.126	-2.121	-2.122	-2.121		

n 24

Slope -2.085

Intercept -0.460

S_{yx} 0.763

S_x 7.110

S_a 0.022

S_b 0.177

$t_{\alpha/2}$ 2.074

r -1.000

Confidence interval

2.085 ± 0.046

S_c 3.631

TABLE A-152 SUMMARY OF DATA FROM TEST NO. 84

Page 1 of 5

Degreaser B, operating

Solvent: Methylene chloride

FB 75 %
Inlet air x
Other

PC x
Exhaust air x

SC ____

A 50 %
V 8 ft/min

Date 5/22/79
Ambient air
Temperature 72 °F
Pressure 29.66 in. Hg
Humidity 53 %

Reading No.				1.	2.	3.
T, min	257586.	257589.	257595.	257627.000	257694.000	257752.000
W, lb	3063.200	3063.200	3060.400	3059.300	3057.900	3055.900
ΔT, h					1.117	0.967
ΔW, lb					-1.400	-2.000
$\Sigma\Delta T$, h					1.117	2.083
$\Sigma\Delta W$, lb					-1.400	-3.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.254	-2.069
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.254	-1.632
$\bar{X}$, lb/h					-1.254	-1.443

Page 2 of 5

TABLE A-152 (continued)

Reading No.	4.	5.	6.	7.	8.	9.
T, min	257808.000	257866.000	257930.000	257988.000	258057.000	258107.000
W, lb	3053.000	3051.000	3048.900	3047.900	3044.800	3042.300
ΔT, h	0.933	0.967	1.067	0.967	1.150	0.833
ΔW, lb	-2.900	-2.000	-2.100	-1.000	-3.100	-2.500
$\Sigma\Delta T$, h	3.017	3.983	5.050	6.017	7.167	8.000
$\Sigma\Delta W$, lb	-6.300	-8.300	-10.400	-11.400	-14.500	-17.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-3.107	-2.069	-1.969	-1.034	-2.696	-3.000
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.088	-2.084	-2.059	-1.895	-2.023	-2.125
$\bar{X}$, lb/h	-1.658	-1.764	-1.823	-1.835	-1.862	-1.895

(continued)

Page 3 of 5

TABLE A-152 (continued)

Reading No.	10.	11.	12.	13.	14.	15.
T, min	258170.000	258228.000	258287.000	258343.000	258412.000	258468.000
W, lb	3042.900	3039.000	3035.700	3034.500	3031.900	3029.100
ΔT, h	1.050	0.967	0.983	0.933	1.150	0.933
ΔW, lb	0.600	-3.900	-3.300	-1.200	-2.600	-2.800
ΣΔT, h	9.050	10.017	11.000	11.933	13.083	14.017
ΣΔW, lb	-16.400	-20.300	-23.600	-24.800	-27.400	-30.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	0.571	-4.034	-3.356	-1.286	-2.261	-3.000
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.812	-2.027	-2.145	-2.078	-2.094	-2.155
$\bar{X}$, lb/h	-1.886	-1.900	-1.922	-1.935	-1.947	-1.962

(continued)

TABLE A-152 (continued) Page 4 of 5

Reading No.	16.	17.	18.	19.	20.	21.
T, min	258528.000	258585.000	258646.000	258705.000	258773.000	258831.000
W, lb	3028.200	3026.100	3023.700	3022.300	3019.800	3017.300
ΔT, h	1.000	0.950	1.017	0.983	1.133	0.967
ΔW, lb	-0.900	-2.100	-2.400	-1.400	-2.500	-2.500
ΣΔT, h	15.017	15.967	16.983	17.967	19.100	20.067
ΣΔW, lb	-31.100	-33.200	-35.600	-37.000	-39.500	-42.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.900	-2.211	-2.361	-1.424	-2.206	-2.586
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.071	-2.079	-2.096	-2.059	-2.068	-2.093
$\bar{X}$, lb/h	-1.970	-1.976	-1.983	-1.988	-1.992	-1.997

(continued)

TABLE A-152 (continued) Page 5 of 5

Reading No.	22.	23.	24.	25.		
T, min	258889.000	258948.000	259007.000	259070.000	259099.000	259152.000
W, lb	3015.300	3013.500	3011.200	3009.100	3008.100	3009.900
ΔT, h	0.967	0.983	0.983	1.050		
ΔW, lb	-2.000	-1.800	-2.300	-2.100		
$\Sigma\Delta T$, h	21.033	22.017	23.000	24.050		
$\Sigma\Delta W$, lb	-44.000	-45.800	-48.100	-50.200		
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.069	-1.831	-2.339	-2.000		
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.092	-2.080	-2.091	-2.087		
$\bar{X}$, lb/h	-2.001	-2.005	-2.009	-2.012		

n	24	S_{yx}	0.649	$t_{\alpha/2}$	2.074
Slope	-2.119	S_x	7.059	r	-1.000
Intercept	0.642	S_a	0.019	Confidence interval	
		S_b	0.179	2.119 ± 0.039	
		S_c	0.941		

TABLE A-153 SUMMARY OF DATA FROM TEST NO. 85

Page 1 of 1

Degreaser A, operating

Solvent: Methylene chloride

FB 75 %   PC x   SC x   A 50 %
Inlet air x   Exhaust air x   V 8 ft/min
Other
Test stopped early

Date 5/23/79
Ambient air
Temperature ____ °F
Pressure ____ in. Hg
Humidity ____ %

Reading No.				1.	2.	3.
T, min	259178.000	259186.000	259193.000	259247.000	259309.000	259331.000
W, lb	3517.200	3517.000	3513.100	3513.300	3511.200	3510.100
ΔT, h					1.033	0.367
ΔW, lb					-2.100	-1.100
ΣΔT, h					1.033	1.400
ΣΔW, lb					-2.100	-3.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-2.032	-3.000
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-2.032	-2.286
$\bar{X}$, lb/h					-2.032	-2.159

TABLE A-154 SUMMARY OF DATA FROM TEST NO. 85

Page 1 of 1

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 75 % PC x SC x A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 5/23/79
Ambient air
Temperature 71 °F
Pressure 29.43 in. Hg
Humidity 55 %

Reading No.				1.	2.	3.
T, min	259178.000	259183.000	259189.000	259247.000	259309.000	259331.000
W, lb	3009.700	3009.500	3007.500	3006.700	3005.100	3004.500
ΔT, h					1.033	0.367
ΔW, lb					-1.600	-0.600
$\Sigma\Delta T$, h					1.033	1.400
$\Sigma\Delta W$, lb					-1.600	-2.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.540	-1.636
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.540	-1.571
$\bar{X}$, lb/h					-1.540	-1.560

TABLE A-155 SUMMARY OF DATA FROM TEST NO. 86

Page 1 of 5

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 75 % PC x SC x A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 5/23/79
Ambient air
Temperature 72 °F
Pressure 29.36 in. Hg
Humidity 56 %

Reading No.				1.	2.	3.
T, min	259413.000	259417.000	259422.000	259469.000	259537.000	259597.000
W, lb	3513.600	3511.500	3509.100	3509.500	3509.600	3507.100
ΔT, h					1.133	1.000
ΔW, lb					0.100	-2.500
$\Sigma\Delta T$, h					1.133	2.133
$\Sigma\Delta W$, lb					0.100	-2.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					0.088	-2.500
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					0.088	-1.125
$\bar{X}$, lb/h					0.088	-0.518

TABLE A-155 (continued)

Reading No.	4.	5.	6.	7.	8.	9.
T, min	259655.000	259727.000	259787.000	259846.000	259906.000	259968.000
W, lb	3503.000	3499.500	3497.000	3495.100	3493.000	3491.500
ΔT, h	0.967	1.200	1.000	0.983	1.000	1.033
ΔW, lb	-4.100	-3.500	-2.500	-1.900	-2.100	-1.500
ΣΔT, h	3.100	4.300	5.300	6.283	7.283	8.317
ΣΔW, lb	-6.500	-10.000	-12.500	-14.400	-16.500	-18.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-4.241	-2.917	-2.500	-1.932	-2.100	-1.452
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-2.097	-2.326	-2.358	-2.292	-2.265	-2.164
$\bar{X}$, lb/h	-1.045	-1.365	-1.564	-1.685	-1.768	-1.817

(continued)

TABLE A-155 (continued)

Reading No.	10.	11.	12.	13.	14.	15.
T, min	260026.000	260148.000	260212.000	260278.000	260336.000	260388.000
W, lb	3489.700	3484.800	3483.300	3481.400	3479.000	3477.600
ΔT, h	0.967	2.033	1.067	1.100	0.967	0.867
ΔW, lb	-1.800	-4.900	-1.500	-1.900	-2.400	-1.400
ΣΔT, h	9.283	11.317	12.383	13.483	14.450	15.317
ΣΔW, lb	-19.800	-24.700	-26.200	-28.100	-30.500	-31.900
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.862	-2.410	-1.406	-1.727	-2.483	-1.615
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.133	-2.183	-2.116	-2.084	-2.111	-2.083
$\bar{X}$, lb/h	-1.852	-1.885	-1.906	-1.921	-1.936	-1.946

(continued)

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TABLE A-155 (continued)

Reading No.	16.	17.	18.	19.	20.	
T, min	260459.000	260511.000	260570.000	260628.000	260666.000	260698.000
W, lb	3475.000	3473.600	3471.200	3469.700	3467.700	3467.800
ΔT, h	1.183	0.867	0.983	0.967	0.633	
ΔW, lb	-2.600	-1.400	-2.400	-1.500	-2.000	
ΣΔT, h	16.500	17.367	18.350	19.317	19.950	
ΣΔW, lb	-34.500	-35.900	-38.300	-39.800	-41.800	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.197	-1.615	-2.441	-1.552	-3.158	
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.091	-2.067	-2.087	-2.060	--2.095	
$\bar{X}$, lb/h	-1.956	-1.963	-1.970	-1.975	--1.982	

. . .

(continued)

TABLE A-155 (continued) Page 5 of 5

Reading No.						
T, min	260782.000					
W, lb	3469.000					
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n 19

Slope -2.104

Intercept 0.041

S_{yx} 1.046

S_x 6.120

S_a 0.040

S_b 0.226

S_c 0.874

$t_{\alpha/2}$ 2.110

r -1.000

Confidence interval

2.104 ± 0.084

TABLE A-156 SUMMARY OF DATA FROM TEST NO. 86

Page 1 of 5

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 75 % PC x SC x A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 5/23,24/79
Ambient air
Temperature 72 °F
Pressure 29.36 in. Hg
Humidity 56 %

Reading No.			1.	2.	3.	4.
T, min	259415.000	259426.000	259469.000	259537.000	259597.000	259655.000
W, lb	3006.000	3002.600	3003.600	3001.400	3001.100	2999.200
ΔT, h				1.133	1.000	0.967
ΔW, lb				-2.200	-0.300	-1.900
$\Sigma\Delta T$, h				1.133	2.133	3.100
$\Sigma\Delta W$, lb				-2.200	-2.500	-4.400
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h				-1.941	-0.300	-1.966
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h				-1.941	-1.172	-1.419
$\bar{X}$, lb/h				-1.941	-1.557	-1.511

TABLE A-156 (continued)

Page 2 of 5

Reading No.	5.	6.	7.	8.	9.	10.
T, min	259727.000	259787.000	259846.000	259906.000	259968.000	260026.000
W, lb	2996.500	2996.000	2994.500	2993.300	2992.000	2990.700
ΔT, h	1.200	1.000	0.983	1.000	1.033	0.967
ΔW, lb	-2.700	-0.500	-1.500	-1.200	-1.300	-1.300
ΣΔT, h	4.300	5.300	6.283	7.283	8.317	9.283
ΣΔW, lb	-7.100	-7.600	-9.100	-10.300	-11.600	-12.900
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.250	-0.500	-1.525	-1.200	-1.258	-1.345
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-1.651	-1.434	-1.448	-1.414	-1.395	-1.390
$\bar{X}$, lb/h	-1.546	-1.524	-1.511	-1.497	-1.484	-1.474

(continued)

TABLE A-156 (continued)

Page 3 of 5

Reading No.	11.	12.	13.	14.	15.	16.
T, min	260087.000	260148.000	260212.000	260278.000	260336.000	260388.000
W, lb	2989.200	2988.500	2987.300	2986.900	2985.800	2984.000
ΔT, h	1.017	1.017	1.067	1.100	0.967	0.867
ΔW, lb	-1.500	-0.700	-1.200	-0.400	-1.100	-1.800
$\Sigma\Delta T$, h	10.300	11.317	12.383	13.483	14.450	15.317
$\Sigma\Delta W$, lb	-14.400	-15.100	-16.300	-16.700	-17.800	-19.600
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.475	-0.689	-1.125	-0.364	-1.138	-2.077
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.398	-1.334	-1.316	-1.239	-1.232	-1.280
$\bar{X}$, lb/h	-1.466	-1.454	-1.443	-1.427	-1.413	-1.404

(continued)

TABLE A-156 (continued) Page 4 of 5

Reading No.	17.	18.	19.	20.	21.	
T, min	260459.000	260511.000	260570.000	260628.000	260666.000	260698.000
W, lb	2982.800	2981.700	2980.500	2979.000	2978.700	2979.300
ΔT, h	1.183	0.867	0.983	0.967	0.633	
ΔW, lb	-1.200	-1.100	-1.200	-1.500	-0.300	
ΣΔT, h	16.500	17.367	18.350	19.317	19.950	
ΣΔW, lb	-20.800	-21.900	-23.100	-24.600	-24.900	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.014	-1.269	-1.220	-1.552	-0.474	
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.261	-1.261	-1.259	-1.274	-1.248	
$\bar{X}$, lb/h	-1.395	-1.387	-1.380	-1.375	-1.368	

(continued)

TABLE A-156 (continued) Page 5 of 5

Reading No.						
T, min	260782.000					
W, lb	2980.600					
ΔT, h						
ΔW, lb						
ΣΔT, h						
ΣΔW, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n	20	S_{yx}	0.545	$t_{\alpha/2}$	2.101
Slope	-1.201	S_x	5.958	r	-1.000
Intercept	-1.177	S_a	0.021	Confidence interval	
		S_b	0.223	1.201 ± 0.044	
		S_c	0.569		

TABLE A-157 SUMMARY OF DATA FROM TEST NO. 87

Page 1 of 3

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 75 % PC x SC ____ A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 5/24/79
Ambient air
Temperature 71 °F
Pressure 29.39 in. Hg
Humidity 56 %

Reading No.				1.	2.	3.
T, min	260985.000	260994.000	261000.000	261032.000	261094.000	261151.000
W, lb	3468.900	3468.700	3467.500	3467.000	3462.300	3459.200
ΔT, h					1.033	0.950
ΔW, lb					-4.700	-3.100
ΣΔT, h					1.033	1.983
ΣΔW, lb					-4.700	-7.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-4.548	-3.263
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-4.548	-3.933
$\bar{X}$, lb/h					-4.548	-4.241

TABLE A-157 (continued) Page 2 of 3

Reading No.	4.	5.	6.	7.	8.	9.
T, min	261210.000	261272.000	261332.000	261390.000	261452.000	261514.000
W, lb	3456.600	3454.100	3451.800	3449.700	3447.000	3444.800
ΔT, h	0.983	1.033	1.000	0.967	1.033	1.033
ΔW, lb	-2.600	-2.500	-2.300	-2.100	-2.700	-2.200
$\Sigma\Delta T$, h	2.967	4.000	5.000	5.967	7.000	8.033
$\Sigma\Delta W$, lb	-10.400	-12.900	-15.200	-17.300	-20.000	-22.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.649	-2.419	-2.300	-2.172	-2.613	-2.129
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-3.506	-3.225	-3.040	-2.899	-2.857	-2.763
$\bar{X}$, lb/h	-3.996	-3.803	-3.650	-3.525	-3.430	-3.346

(continued)

TABLE A-157 (continued) Page 3 of 3

Reading No.						
T, min	261559.000					
W, lb	3448.300					
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n 8

Slope -2.455

Intercept -2.770

S_{yx} 0.350

S_x 2.452

S_a 0.054

S_b 0.606

S_c 0.807

$t_{\alpha/2}$ 2.447

r -1.000

Confidence interval

2.455 ± 0.132

TABLE A-158 SUMMARY OF DATA FROM TEST NO. 87

Page 1 of 3

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 125 %　PC x　SC x　A 50 %
Inlet air x　Exhaust air x　V 8 ft/min
Other

Date 5/24/79
Ambient air
Temperature 71 °F
Pressure 29.39 in. Hg
Humidity 56 %

Reading No.				1.	2.	3.
T, min	260985.000	260996.000	261003.000	261032.000	261094.000	261151.000
W, lb	3119.500	3118.000	3113.000	3113.900	3113.700	3112.700
ΔT, h					1.033	0.950
ΔW, lb					-0.200	-1.000
ΣΔT, h					1.033	1.983
ΣΔW, lb					-0.200	-1.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-0.194	-1.053
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-0.194	-0.605
$\bar{X}$, lb/h					-0.194	-0.399

TABLE A-158 (continued) Page 2 of 3

Reading No.	4.	5.	6.	7.	8.	9.
T, min	261210.000	261272.000	261332.000	261390.000	261452.000	261514.000
W, lb	3111.900	3112.100	3111.000	3108.500	3107.400	3106.100
ΔT, h	0.983	1.033	1.000	0.967	1.033	1.033
ΔW, lb	-0.800	0.200	-1.100	-2.500	-1.100	-1.300
ΣΔT, h	2.967	4.000	5.000	5.967	7.000	8.033
ΣΔW, lb	-2.000	-1.800	-2.900	-5.400	-6.500	-7.800
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-0.814	0.194	-1.100	-2.586	-1.065	-1.258
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-0.674	-0.450	-0.580	-0.905	-0.929	-0.971
$\bar{X}$, lb/h	-0.491	-0.481	-0.501	-0.568	-0.619	-0.663

(continued)

TABLE A-158 (continued) Page 3 of 3

Reading No.						
T, min	261585.000					
W, lb	3109.300					
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)_e$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)_e$, lb/h						
$\bar{X}$, lb/h						

n 8

Slope -1.082

Intercept 1.394

S_{yx} 0.760

S_x 2.452

S_a 0.117

S_b 0.606

S_c 0.820

$t_{\alpha/2}$ 2.447

r -1.000

Confidence interval

1.082 ± 0.286

TABLE A-159 SUMMARY OF DATA FROM TEST NO. 88

Page 1 of 3

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC x A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 5/25/79
Ambient air
Temperature 72 °F
Pressure 29.29 in. Hg
Humidity 52 %

Reading No.				1.	2.	3.
T, min	261774.000	261787.000	261795.000	261926.000	262000.000	262059.000
W, lb	3358.300	3357.700	3354.500	3351.300	3349.100	3347.000
ΔT, h					1.233	0.983
ΔW, lb					-2.200	-2.100
$\Sigma\Delta T$, h					1.233	2.217
$\Sigma\Delta W$, lb					-2.200	-4.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.784	-2.136
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.784	-1.940
$\bar{X}$, lb/h					-1.784	-1.862

TABLE A-159 (continued) Page 2 of 3

Reading No.	4.	5.	6.	7.	8.	9.
T, min	262118.000	262177.000	262235.000	262294.000	262353.000	262416.000
W, lb	3345.500	3343.900	3339.300	3337.100	3335.300	3332.100
ΔT, h	0.983	0.983	0.967	0.983	0.983	1.050
ΔW, lb	-1.500	-1.600	-4.600	-2.200	-1.800	-3.200
$\Sigma\Delta T$, h	3.200	4.183	5.150	6.133	7.117	8.167
$\Sigma\Delta W$, lb	-5.800	-7.400	-12.000	-14.200	-16.000	-19.200
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.525	-1.627	-4.759	-2.237	-1.831	-3.048
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.813	-1.769	-2.330	-2.315	-2.248	-2.351
$\bar{X}$, lb/h	-1.845	-1.826	-1.927	-1.992	-2.028	-2.069

(continued)

TABLE A-159 (continued)

Page 3 of 3

Reading No.						
T, min	262444.000	262523.000				
W, lb	3331.900	1846.900				
ΔT, h						
ΔW, lb						
ΣΔT, h						
ΣΔW, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n 8

Slope -2.504

Intercept 1.567

S_{yx} 0.820

S_x 2.415

S_a 0.128

S_b 0.661

S_c 1.078

$t_{\alpha/2}$ 2.447

r -1.000

Confidence interval

2.504 ± 0.313

Page 1 of 3

TABLE A-160 SUMMARY OF DATA FROM TEST NO. 88

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 50 % PC x SC x A 50 %
Inlet air ____ Exhaust air x V 8 ft/min
Other

Date 5/25/79
Ambient air
Temperature 72 °F
Pressure 29.29 in/ Hg
Humidity 52 %

Reading No.				1.	2.	3.
T, min	261774.000	261787.000	261795.000	261926.000	262000.000	262059.000
W, lb	2893.000	2892.000	2890.200	2887.100	2884.600	2882.200
ΔT, h					1.233	0.983
ΔW, lb					-2.500	-2.400
ΣΔT, h					1.233	2.217
ΣΔW, lb					-2.500	-4.900
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-2.027	-2.441
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-2.027	-2.211
$\bar{X}$, lb/h					-2.027	-2.119

TABLE A-160 (continued) **Page 2 of 3**

Reading No.	4.	5.	6.	7.	8.	9.
T, min	262118.000	262177.000	262235.000	262294.000	262353.000	262416.000
W, lb	2880.500	2878.500	2876.000	2874.300	2871.600	2869.600
ΔT, h	0.983	0.983	0.967	0.983	0.983	1.050
ΔW, lb	-1.700	-2.000	-2.500	-1.700	-2.700	-2.000
ΣΔT, h	3.200	4.183	5.150	6.133	7.117	8.167
ΣΔW, lb	-6.600	-8.600	-11.100	-12.800	-15.500	-17.500
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.729	-2.034	-2.586	-1.729	-2.746	-1.905
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.063	-2.056	-2.155	-2.087	-2.178	-2.143
$\bar{X}$, lb/h	-2.100	-2.089	-2.102	-2.100	-2.111	-2.115

(continued)

TABLE A-160 (continued) Page 3 of 3

Reading No.						
T, min	262444.000	262523.000				
W, lb	2869.400	2871.100				
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n	8	S_{yx}	0.24	$t_{\alpha/2}$	2.447
Slope	-2.163	S_x	2.415	r	-1.000
Intercept	0.175	S_a	0.038	**Confidence interval**	
		S_b	0.661	2.163 ± 0.093	
				S_c	0.392

TABLE A-161 SUMMARY OF DATA FROM TEST NO. 89

Page 1 of 2

Degreaser A, operating

Solvent: 1,1,1-Trichloroethane

FB 50 %　PC x　SC ____　A 50 %
Inlet air ____　Exhaust air x　V 8 ft/min
Other

Date 5/25/79
Ambient air
Temperature 71 °F
Pressure 29.39 in. Hg
Humidity 51 %

Reading No.			1.	2.	3.	4.
T, min	262538.000	262550.000	262578.000	262637.000	262698.000	262758.000
W, lb	3335.000	3328.500	3328.800	3326.700	3324.600	3322.500
ΔT, h				0.983	1.017	1.000
ΔW, lb				-2.100	-2.100	-2.100
ΣΔT, h				0.983	2.000	3.000
ΣΔW, lb				-2.100	-4.200	-6.300
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h				-2.136	-2.066	-2.100
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h				-2.136	-2.100	-2.100
$\bar{X}$, lb/h				-2.136	-2.118	-2.112

TABLE A-161 (continued)

Reading No.	5.	6.	7.	8.	9.	
T, min	262818.000	262878.000	262938.000	262998.000	263058.000	263080.000
W, lb	3320.900	3318.700	3316.800	3315.500	3313.500	3316.800
ΔT, h	1.000	1.000	1.000	1.000	1.000	
ΔW, lb	-1.600	-2.200	-1.900	-1.300	-2.000	
ΣΔT, h	4.000	5.000	6.000	7.000	8.000	
ΣΔW, lb	-7.900	-10.100	-12.000	-13.300	-15.300	
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.600	-2.200	-1.900	-1.300	-2.000	
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-1.975	-2.020	-2.000	-1.900	-1.913	
$\bar{X}$, lb/h	-2.078	-2.066	-2.055	-2.033	-2.018	

n 8

Slope -1.869

Intercept -0.494

S_{yx} 0.242

S_x 2.453

S_a 0.037

S_b 0.605

S_c 0.310

$t_{\alpha/2}$ 2.447

r -1.000

Confidence interval

1.869 ± 0.090

TABLE A-162 SUMMARY OF DATA FROM TEST NO. 89

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 50 %
Inlet air ____
Other

PC x
Exhaust air x

SC ____

V 8 ft/min

A 50 %

Date 5/25/79, ____
Ambient air
Temperature ____ °F
Pressure ____ in. Hg
Humidity ____ %

Reading No.				1.	2.	3.
T, min	262538.000	262538.000	262550.000	262578.000	262637.000	262698.000
W, lb	2871.200	2871.200	2866.000	2865.700	2863.400	2861.000
ΔT, h					0.983	1.017
ΔW, lb					-2.300	-2.400
ΣΔT, h					0.983	2.000
ΣΔW, lb					-2.300	-4.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-2.339	-2.361
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-2.339	-2.350
$\bar{X}$, lb/h					-2.339	-2.344

TABLE A-162 (continued) Page 2 of 3

Reading No.	4.	5.	6.	7.	8.	9.
T, min	262758.000	262818.000	262878.000	262938.000	262998.000	263058.000
W, lb	2859.300	2857.000	2855.000	2853.400	2851.500	2848.700
ΔT, h	1.000	1.000	1.000	1.000	1.000	1.000
ΔW, lb	-1.700	-2.300	-2.000	-1.600	-1.900	-2.800
$\Sigma\Delta T$, h	3.000	4.000	5.000	6.000	7.000	8.000
$\Sigma\Delta W$, lb	-6.400	-8.700	-10.700	-12.300	-14.200	-17.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.700	-2.300	-2.000	-1.600	-1.900	-2.800
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h	-2.133	-2.175	-2.140	-2.050	-2.029	-2.125
$\bar{X}$, lb/h	-2.274	-2.249	-2.227	-2.198	-2.174	-2.168

(continued)

TABLE A-162 (continued)

Page 3 of 3

Reading No.						
T, min	263089.000					
W, lb	2852.300					
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n 8

Slope -2.022

Intercept -0.442

S_{yx} 0.290

S_x 2.453

S_a 0.045

S_b 0.605

S_c 0.396

$t_{\alpha/2}$ 2.447

r -1.000

Confidence interval

2.022 ± 0.110

TABLE A-163 SUMMARY OF DATA FROM TEST NO. 90 Page 1 of 3

Degreaser A, operating

Solvent: Methylene chloride

FB 75 % PC x SC ____ A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 5/31/79
Ambient air
Temperature 75 °F
Pressure 29.49
Humidity 68 %

Reading No.				1.	2.	3.
T, min	270605.000	270618.000	270624.000	270660.000	270720.000	270785.000
W, lb	3553.200	3551.200	3545.900	3546.100	3544.800	3543.200
ΔT, h					1.000	1.083
ΔW, lb					-1.300	-1.600
ΣΔT, h					1.000	2.083
ΣΔW, lb					-1.300	-2.900
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-1.300	-1.477
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-1.300	-1.392
$\bar{X}$, lb/h					-1.300	-1.346

TABLE A-163 (continued)

Reading No.	4.	5.	6.	7.	8.	9.
T, min	270843.000	270901.000	270961.000	271019.000	271083.000	271140.000
W, lb	3540.800	3539.900	3537.800	3536.500	3534.700	3533.400
ΔT, h	0.967	0.967	1.000	0.967	1.067	0.950
ΔW, lb	-2.400	-0.900	-2.100	-1.300	-1.800	-1.300
ΣΔT, h	3.050	4.017	5.017	5.983	7.050	8.000
ΣΔW, lb	-5.300	-6.200	-8.300	-9.600	-11.400	-12.700
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-2.483	-0.931	-2.100	-1.345	-1.687	-1.368
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-1.738	-1.544	-1.654	-1.604	-1.617	-1.588
$\bar{X}$, lb/h	-1.477	-1.493	-1.526	-1.539	-1.550	-1.555

(continued)

TABLE A-163 (continued)

Page 3 of 3

Reading No.						
T, min	271148.000	271178.000				
W, lb	3532.800	3534.800				
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n 8

Slope -1.642

Intercept 0.217

S_{yx} 0.296

S_x 2.439

S_a 0.046

S_b 0.617

S_c 0.494

$t_{\alpha/2}$ 2.447

r -0.999

Confidence interval

1.642 ± 0.112

Page 1 of 3

TABLE A-164 SUMMARY OF DATA FROM TEST NO. 90

Degreaser B, operating

Solvent: 1,1,1-Trichloroethane

FB 75 % PC x SC ____ A 50 %
Inlet air x Exhaust air x V 8 ft/min
Other

Date 5/31/79
Ambient air
Temperature 75 °F
Pressure 29.49 in. Hg
Humidity 68 %

Reading No.				1.	2.	3.
T, min	270605.000	270618.000	270624.000	270660.000	270720.000	270785.000
W, lb	2872.300	2873.400	2868.300	2867.000	2864.900	2863.900
ΔT, h					1.000	1.083
ΔW, lb					-2.100	-1.000
$\Sigma\Delta T$, h					1.000	2.083
$\Sigma\Delta W$, lb					-2.100	-3.100
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h					-2.100	-0.923
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h					-2.100	-1.488
$\bar{X}$, lb/h					-2.100	-1.794

TABLE A-164 (continued)

Page 2 of 3

Reading No.	4.	5.	6.	7.	8.	9.
T, min	270843.000	270901.000	270961.000	271019.000	271083.000	271140.000
W, lb	2862.600	2861.900	2860.400	2859.700	2858.500	2857.000
ΔT, h	0.967	0.967	1.000	0.967	1.067	0.950
ΔW, lb	-1.300	-0.700	-1.500	-0.700	-1.200	-1.500
ΣΔT, h	3.050	4.017	5.017	5.983	7.050	8.000
ΣΔW, lb	-4.400	-5.100	-6.600	-7.300	-8.500	-10.000
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h	-1.345	-0.724	-1.500	-0.724	-1.125	-1.579
$\left(\frac{\Sigma \Delta W}{\Sigma \Delta T}\right)$, lb/h	-1.443	-1.270	-1.316	-1.220	-1.206	-1.250
$\bar{X}$, lb/h	-1.677	-1.575	-1.523	-1.473	-1.435	-1.411

(continued)

TABLE A-164 (continued)

Page 3 of 3

Reading No.						
T, min	271148.000	271187.000				
W, lb	2856.900	2861.000				
ΔT, h						
ΔW, lb						
$\Sigma\Delta T$, h						
$\Sigma\Delta W$, lb						
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h						
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h						
$\bar{X}$, lb/h						

n 8

Slope -1.106

Intercept -0.883

S_{yx} 0.210

S_x 2.439

S_a 0.033

S_b 0.617

S_c 0.475

$t_{\alpha/2}$ 2.447

r -1.000

Confidence interval

1.106 ± 0.081

TABLE A-165 SUMMARY OF DATA FROM TEST NO. 91

Page 1 of 1

Degreaser A, idle

Solvent: 1,1,1-Trichloroethane
(Boiling ____; nonboiling x)
FB 50 % PC ____ SC ____ A 0 %
Inlet air ____ Exhaust air x V 0 ft/min
Other
Lid closed

Date 5/30/79
Ambient air
Temperature ____ °F
Pressure ____ in. Hg
Humidity ____ %

Reading No.	1.	2.				
T, min	269305.000	270322.000				
W, lb	3265.500	3262.800				
ΔT, h		16.950				
ΔW, lb		-2.700				
ΣΔT, h		16.950				
ΣΔW, lb		-2.700				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.159				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-0.159				
$\bar{X}$, lb/h		-0.159				

TABLE A-166 SUMMARY OF DATA FROM TEST NO. 91

Page 1 of 1

Degreaser B, idle

Solvent: 1,1,1-Trichloroethane
(Boiling ____; nonboiling x)
FB 50 % PC ____ SC ____ A 0 %
Inlet air ____ Exhaust air x V 0 ft/min
Other
Lid closed

Date 5/30/79
Ambient air
Temperature ____ °F
Pressure ____ in. Hg
Humidity ____ %

Reading No.	1.	2.			
T, min	269305.000	270322.000			
W, lb	2814.700	2812.200			
ΔT, h		16.950			
ΔW, lb		-2.500			
ΣΔT, h		16.950			
ΣΔW, lb		-2.500			
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		-0.147			
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		-0.147			
$\bar{X}$, lb/h		-0.147			

TABLE A-167 SUMMARY OF DATA FROM TEST NO. 92

Page 1 of 1

Degreaser A, idle

Solvent: 1,1,1-Trichloroethane
(Boiling ___; nonboiling x)
FB 50 % PC ___ SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 5/29/79
Ambient air
Temperature 75 °F
Pressure 29.45 in. Hg
Humidity 59 %

Reading No.	1.	2.				
T, min	267965.000	269218.000				
W, lb	3270.500	3265.000				
ΔT, h		20.883				
ΔW, lb		5.500				
ΣΔT, h		20.883				
ΣΔW, lb		5.500				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		0.263				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		0.263				
$\bar{X}$, lb/h		0.263				

Page 1 of 1

TABLE A-168 SUMMARY OF DATA FROM TEST NO. 92

Degreaser B, idle

Solvent: 1,1,1-Trichloroethane
(Boiling ___; nonboiling x)
FB 50 % PC ___ SC ___ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other

Date 5/29/79
Ambient air
Temperature 75 °F
Pressure 29.45 in. Hg
Humidity 59 %

Reading No.	1.	2.				
T, min	267965.000	269218.000				
W, lb	2851.500	2848.300				
ΔT, h		20.883				
ΔW, lb		3.200				
ΣΔT, h		20.883				
ΣΔW, lb		3.200				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		0.153				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		0.153				
$\bar{X}$, lb/h		0.153				

TABLE A-169 SUMMARY OF DATA FROM TEST NO. 94 Page 1 of 1

Degreaser A, idle

Solvent: 1,1,1-Trichloroethane
(Boiling ____; nonboiling x)
FB 75 % PC x SC ____ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other Primary condensers went off during the test

Date 6/18/79
Ambient air
Temperature 72 °F
Pressure 29.65 in. Hg
Humidity 55 %

Reading No.	1.	2.				
T, min		306753.000				
W, lb	3514.600	3445.600				
ΔT, h		165.567				
ΔW, lb		69.000				
ΣΔT, h		165.567				
ΣΔW, lb		69.000				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		0.417				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		0.417				
$\bar{X}$, lb/h		0.417				

TABLE A-170 SUMMARY OF DATA FROM TEST NO. 94

Page 1 of 1

Degreaser B, idle

Solvent: 1,1,1-Trichloroethane
(Boiling ____; nonboiling x)
FB 75 % PC x SC ____ A 0 %
Inlet air x Exhaust air x V 0 ft/min
Other Primary condensers went off during the test

Date 6/18/79
Ambient air
Temperature 72 °F
Pressure 29.65 in. Hg
Humidity 55 %

Reading No.	1.	2.				
T, min	296819.000	306753.000				
W, lb	337.600	327.000				
ΔT, h		165.567				
ΔW, lb		10.600				
ΣΔT, h		165.567				
ΣΔW, lb		10.600				
$\left(\frac{\Delta W}{\Delta T}\right)$, lb/h		0.064				
$\left(\frac{\Sigma\Delta W}{\Sigma\Delta T}\right)$, lb/h		0.064				
$\bar{X}$, lb/h		0.064				

APPENDIX B

TEST CONDITIONS AND RESULTS

The table given here shows the test conditions and solvent loss results. Each test run is identified on the left side of the table in terms of the equipment modifications and other parameters that were used. Data on solvent loss are given on the right side.

TABLE B-1. TEST CONDITIONS AND RESULTS
(test period October 1978 to July 1979)

	TEST CONDITIONS[a]														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser (PC)	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), m/s	Load area (A), %	Air velocity at lip, m/s	Load cleaned,[c] kg/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), kg/h	Solvent loss, kg/h per m^2	Electric demand, kW	Water demand, liter/s	Comments
1	A	10/10	TE	✓	✓	✓		50	0.04	50	0.1	9.23	✓		18.23	1.136	0.806	23.68	0.265	
	B														20.95	0.957	0.684	26.82	0.180	
2	A	10/12	TE					50	0	0	0.1	0			15.67	0.044[d]	0.029	NA	NA	
	B														15.67	0.044	0.029	NA	NA	
3	A	10/16	TE	✓				50	0	0	0.1	0			21.83	0.081	0.059	NA	NA	
	B														21.83	0.044	0.029	NA	NA	
4	A	10/19	TE	✓				50	0	0	0.1	0			19.27	0.049	0.034	NA	NA	
	B														19.27	0.031	0.024	NA	NA	
5	A	10/27	TE	✓				50	0	0	0.1	0			17.50	0.024	0.020	NA	NA	
	B														17.50	0.022	0.015	NA	NA	
6	A	11/3	TE	✓	✓	✓		50	0.04	50	0.1	9.23			3.07	1.148	0.850	NA	NA	
	B														3.03	0.875	0.806	NA	NA	
7	A	11/12	TE	✓	✓	✓		50	0.04	50	0.1	9.23	✓		24.00	1.030	0.737	23.27	0.257	
	B														23.91	1.048	0.752	21.47	0.163	
8	A	11/13	TE	✓	✓	✓		50	0.04	50	0.1	9.23	✓	✓	14.87	1.034	0.742	23.24	0.253	
	B														14.88	0.966	0.688	20.66	0.132	

(continued)

TABLE B-1 (continued)

	TEST CONDITIONS[a]														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser (PC)	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), m/s	Load area (A), %	Air velocity at lip, m/s	Load cleaned,[c] kg/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), kg/h	Solvent loss, kg/h per m^2	Electric demand, kW	Water demand, liter/s	Comments
9	A	11/14	TE	✓	✓	✓		50	0	0	0.1	0	✓		7.93	0.816	0.586	21.85	0.278	
	B														7.92	0.426	0.303	19.44	0.200	
10	A	11/15	TE	✓	✓	✓	✓	50	0	0	0.1	0	✓		7.10	0.662	0.474	23.07	0.276	
	B														7.08	1.252	0.894	21.06	0.180	
11	A	11/15	TE	✓	✓	✓	✓	50	0.04	50	0.1	0	✓		7.05	1.325	0.952	23.76	0.272	
	B														7.10	0.844	0.366	21.03	0.134	Results discarded.
12	A	11/16	TE		✓	✓	✓	50	0	0	0.1	0	✓		7.15	0.146	0.063	22.90	0.278	Results discarded.
	B														7.20	0.975	0.693	20.09	0.131	
13	A	11/16	TE		✓	✓		50	0	0	0.1	0	✓		7.07	0.319	0.229	22.98	0.312	
	B														6.05	0.397	0.283	20.50	0.141	
14	A	11/17	TE	✓	✓	✓	✓	50	0.04	50	0.1	9.23	✓		5.72	1.510	1.084	22.64	0.097	
	B														5.93	0.649	0.464	18.62	0.140	
15	A	11/20	TE	✓	✓	✓		50	0.04	50	0.1	2	✓		8.03	0.494	0.356	21.36	NA	Top was closed one half hour between each load cycle.
	B										0.1	2			6.33	0.562	0.498	18.38	0.112	
16	A	11/20	TE	✓	✓	✓	✓	50	0	0	0.1	0	✓		6.95	0.653	0.469	23.64	NA	
	B														6.93	0.549	0.391	21.56	0.123	

(continued)

TABLE B-1 (continued)

	TEST CONDITIONS[a]														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser (PC)	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), m/s	Load area (A), %	Air velocity at lip, m/s	Load cleaned,[c] kg/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), kg/h	Solvent loss, kg/h per m^2	Electric demand, kW	Water demand, liter/s	Comments
17	A	11/21	TE	✓	✓	✓	✓	75	0	0	0.1	0	✓		6.97	0.485	0.347	24.84	NA	
	B														6.98	0.299	0.215	22.51	NA	
18	A	11/21	TE	✓	✓	✓	✓	75	0.04	50	0.1	9.23	✓		6.95	0.971	0.698	22.64	NA	
	B														6.90	0.816	0.581	20.53	NA	
19	A	11/22	TE	✓	✓	✓	✓	50	0.04	50	0.1	9.23	✓		5.97	1.102	0.791	22.67	NA	
	B														5.97	1.048	0.747	20.99	NA	
20	A	11/26	TE	✓	✓	✓		50	0.04	70	0.1	9.23	✓		5.93	1.281	0.903	24.06	NA	
	B														5.10	1.044	0.757	20.15	0.165	
21	A																			Not run.
	B																			
22	A	12/21	TE	✓	✓	✓		75	0.04	50	0.1	9.23	✓		5.83	0.635	0.454	22.88	0.434	
	B														11.83	0.835	0.581	20.57	0.155	
23	A	12/22	TE	✓	✓	✓		100	0.04	50	0.1	9.23	✓		10.88	0.553	0.395	21.53	0.272	
	B														10.50	0.467	0.347	18.85	0.121	
24	A																			Not run.
	B																			
25	A	1/15	TE	✓	✓	✓	✓	50	0.04	50	0.1	9.23	✓	✓	25.83	0.807	0.591	24.55	0.243	
	B														26.22	0.880	0.620	20.79	0.127	

(continued)

TABLE B-1 (continued)

	TEST CONDITIONS[a]														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser (PC)	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), m/s	Load area (A), %	Air velocity at lip, m/s	Load cleaned,[c] kg/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), kg/h	Solvent loss, kg/h per m²	Electric demand, kW	Water demand, liter/s	Comments
26	A	1/18	TE	✓	✓	✓	✓	50	0.04	70	0.1	9.23	✓	✓				NA	NA	Extensive problems with Degreaser A.
	B														24.23	0.862	0.630	18.38	0.134	
27	A	1/19	TE	✓	✓	✓	✓	50	0.04	70	0.1	9.23	✓	✓				NA	NA	Results discarded.
	B																	NA	NA	
28	A	1/20	TE	✓	✓	✓	✓	125	0.04	70	0.1	9.23	✓	✓	24.20	0.762	0.542	24.3	0.128	
	B														24.25	0.662	0.474	22.07	0.138	
29	A	1/21	TE	✓	✓	✓	✓	125	0.04	70	0.1	9.23	✓	✓	24.10	1.075	0.781	22.76	0.190	
	B														24.26	0.962	0.684	19.03	0.126	
30	A	1/26	TE	✓	✓	✓	✓	125	0.04	50	0.1	9.23	✓	✓	25.40	0.680	0.498	24.33	0.166	
	B														26.40	0.526	0.435	20.81	0.128	
31	A	1/25	TE	✓	✓	✓		125	0.04	50	0.1	9.23	✓	✓	24.07	1.025	0.889	23.35	0.098	Results discarded.
	B														16.28	0.699	0.518	0.32	0.083	
32	A	1/28	TE	✓	✓	✓		125	0.08	50	0.1	9.23	✓	✓	18.87	0.839	0.610	NA	NA	
	B			✓	✓	✓		100	0.08	50	0.1	9.23			18.87	0.907	0.625	NA	NA	
33	A	1/29	TE	✓	✓	✓		125	0.08	70	0.1	9.23	✓	✓	18.40	1.093	0.811	24.04	0.080	
	B			✓	✓	✓		75	0.08	50	0.1	9.23			18.40	0.839	0.562	21.16	0.083	
34	A	1/31	TE	✓	✓	✓	✓	50	0.04	50	0.1	9.23	✓	✓	18.20	0.857	0.615	24.64	0.136	
	B														18.47	0.943	0.664	22.69	0.080	

(continued)

TABLE B-1 (continued)

	TEST CONDITIONS[a]														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser (PC)	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), m/s	Load area (A), %	Air velocity at lip, m/s	Load cleaned,[c] kg/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), kg/h	Solvent loss, kg/h per m^2	Electric demand, kW	Water demand, liter/s	Comments
35	A	2/2	TE	✓	✓	✓		50	0.08	50	0.1	9.23	✓	✓	20.28	1.157	0.796	24.07	0.193	Top on Degreaser B left open between each cycle.
	B			✓	✓	✓		50	0.04	50	0.1	2	✓	✓	20.33	0.517	0.342	21.30	0.148	
36	A	2/4	TE	✓	✓	✓		50	0.08	70	0.1	9.23	✓	✓	18.17	1.560	1.118	24.67	0.187	
	B																			Degreaser B not used.
37	A	4/1	MC	✓	✓	✓		50	0.04	50	0.1	9.23	✓	✓	23.85	0.776	0.557	12.00	0.429	
	B		MC												23.78	1.052	0.747	14.40	0.635	
38	A	4/2	MC	✓	✓	✓	✓	50	0.04	50	0.1	9.23	✓	✓	24.13	0.880	0.630	13.00	0.410	
	B		MC												24.13	0.889	0.591	15.36	0.632	
39	A	4/4	MC	✓	✓	✓		50	0.04	70	0.1	9.23	✓	✓	24.08	1.175	0.840	12.00	0.407	
	B		MC												24.08	1.610	1.143	14.40	0.623	
40	A	4/5	MC	✓	✓	✓	✓	50	0.04	70	0.1	9.23	✓	✓	24.25	1.075	0.771	12.99	0.417	
	B		MC												24.25	1.107	0.781	15.38	0.636	
41	A	4/11	MC	✓	✓	✓	✓	125	0.04	50	0.1	9.23	✓	✓	24.17	0.585	0.420	12.56	0.432	
	B		MC												24.17	0.776	0.562	14.42	0.657	
42	A	4/12	MC	✓	✓	✓	✓	125	0.04	50	0.1	9.23	✓	✓	24.08	0.585	0.420	13.04	0.419	
	B		MC												24.08	0.407	0.288	15.44	0.638	

(continued)

TABLE B-1 (continued)

	TEST CONDITIONS[a]														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser (PC)	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), m/s	Load area (A), %	Air velocity at lip, m/s	Load cleaned,[c] kg/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), kg/h	Solvent loss, kg/h per m^2	Electric demand, kW	Water demand, liter/s	Comments
43	A	4/9	MC	✓	✓	✓		125	0.04	70	0.1	9.23	✓	✓	24.00	0.703	0.503	12.19	0.418	
	B		MC												24.00	0.971	0.693	14.39	0.636	
44	A	4/8	MC	✓	✓	✓	✓	125	0.04	70	0.1	9.23	✓	✓	24.03	0.603	0.435	12.92	0.419	
	B		MC								0.1				24.03	0.585	0.415	15.33	0.636	
45	A	3/28	MC	✓	✓	✓		50	0.04	50		9.23			24.46	1.932	1.372	12.89	0.477	Deg. A: Lip exhaust at 0.50 m^3/s per m^2 top opening.
	B		MC																	Deg. B: Not run.
46	A	3/29	MC	✓	✓	✓		50	0.04	50		9.23	✓	✓	24.03	1.633	1.172	12.69	0.464	Deg. A: Lip exhaust at 0.25 m^3/s per m^2 top opening.
	B		MC	✓	✓	✓		50	0.04	50	0.1	9.23	✓	✓	24.03	0.980	0.698	14.14	0.628	Deg. B: Crosscurrent test.
47	A		MC																	Not run.
	B	3/28	MC	✓	✓	✓		50	0.04	50	0.26	9.23	✓	✓	24.46	2.223	1.602	NA	NA	Crosscurrent test.
48	A	6/12	TE	✓	✓	✓		75	0.04	50	0.1	9.23	✓	✓	24.08	1.016	0.713	14.65	0.693	Crosscurrent test.
	C		TE	✓	✓	✓		75	0.04	50	0.1	9.23	✓	✓	16.92	0.195	0.137	4.08	0.142	Test of small degreaser.
49	A																			Not run.
	B																			Not run.
50	A	2/16	MC	✓	✓	✓		50	0	0	0.1	9.23	✓	✓	18.60	0.426	0.317	12.41	0.459	
	B		MC												18.08	0.490	0.356	15.30	0.458	

(continued)

TABLE B-1 (continued)

	TEST CONDITIONS[a]														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser (PC)	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), m/s	Load area (A), %	Air velocity at lip, m/s	Load cleaned,[c] kg/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), kg/h	Solvent loss, kg/h per m^2	Electric demand, kW	Water demand, liter/s	Comments
51	A	2/25	MC		✓	✓		50	0	0	0.1	0	✓	✓	19.73	0.290	0.210	12.35	0.565	
	B		MC												19.73	0.358	0.254	14.55	0.728	
52	A	2/22	MC	✓		✓		50	0	0	0.1	0	✓	✓	20.68	0.218	1.562	0	0	
	B														20.68	0.141	1.025	0	0	
53	A	2/25	MC					50	0	0	0.1	0	✓	✓	43.63	0.150	0.107	0	0.076	Solvent loss during cooldown period.
	B														42.87	0.110	0.088	0	0.414	
54	A	2/27	MC			✓	✓	50	0	0	0.1	0	✓	✓	21.12	0.259	0.186	0.69	0.505	Solvent loss during cooldown period.
	B														20.98	0.118	0.083	0.94	1.168	
55	A																			Not run.
	B																			Not run.
56	A																			Not run.
	B																			Not run.
57	A	3/2	MC	✓		✓	✓	50	0	0	0.1	0	✓	✓	25.08	0.240	0.171	0.79	0.180	Solvent loss during cooldown period.
	B														25.08	0.395	1.099	1.09	0.493	
58	A	3/1	MC	✓	✓	✓	✓	50	0	0	0.1	0	✓	✓	22.72	0.649	0.464	12.88	0.427	
	B														22.72	0.304	0.220	15.27	0.510	

(continued)

TABLE B-1 (continued)

Test No.	TEST CONDITIONS[a]														TEST RESULTS					
	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser (PC)	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), m/s	Load area (A), %	Air velocity at lip, m/s	Load cleaned,[c] kg/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), kg/h	Solvent loss, kg/h per m²	Electric demand, kW	Water demand, liter/s	Comments
59	A	3/3	MC	✓		✓		50	0	0	0.1	0	✓	✓	51.02	0.191	0.132	0	2.52	
	B		MC												51.02	0.150	0.107	0	6.31	
60	A	3/5	MC	✓		✓	✓	50	0	0	0.1	0	✓	✓	21.55	0.209	0.151	0.82	2.48	
	B		MC												21.55	0.342	0.244	1.12	6.65	
61	A	3/6	MC	✓				50	0	0	0.1	0	✓	✓	22.37	0.231	0.166	0	0	
	B		MC												22.37	0.218	0.146	0	0	
62	A	3/7	MC	✓	✓	✓		50	0	0	0.1	0	✓	✓	17.43	0.490	0.347	12.30	6.61	
	B		MC												17.43	0.549	0.381	14.51	7.44	
63	A	3/8	MC	✓	✓	✓	✓	50	0	0	0.1	0	✓	✓	22.45	0.621	0.444	12.97	7.76	
	B		MC												22.45	0.336	0.249	14.91	9.23	
64	A	3/10	MC	✓	✓	✓		75	0	0	0.1	0	✓	✓	24.68	0.331	0.244	12.25	7.76	
	B		MC												25.97	0.476	0.352	14.51	9.19	
65	A	3/11	MC	✓	✓	✓		100	0	0	0.1	0	✓	✓	21.50	0.381	0.269	12.34	7.77	
	B		MC												21.50	0.431	0.312	14.56	9.19	
66	A	3/12	MC	✓		✓		100	0	0	0.1	0	✓	✓	21.03	0.150	0.107	0	7.76	Solvent loss during cooldown period.
	B		MC												20.03	0.181	0.127	0	9.16	

(continued)

TABLE B-1 (continued)

	TEST CONDITIONS[a]														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser (PC)	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), m/s	Load area (A), %	Air velocity at lip, m/s	Load cleaned,[c] kg/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), kg/h	Solvent loss, kg/h per m2	Electric demand, kW	Water demand, liter/s	Comments
67	A	3/13	MC	✓	✓	✓	✓	100	0		0.1	0	✓	✓	24.07	0.322	0.229	12.91	0.469	
	B														24.95	0.227	0.166	14.74	0.556	
68	A	3/14	MC	✓		✓	✓	100	0		0.1	0	✓	✓	24.17	0.193	0.137	0.36	0.370	
	B														23.25	0.255	0.181	1.09	0.579	
69	A	3/15	MC	✓	✓	✓		125	0		0.1	0	✓	✓	19.65	0.362	0.259	12.35	0.410	
	B														19.65	0.553	0.391	14.55	0.579	
70	A	3/16	MC	✓		✓		125	0		0.1	0	✓	✓	71.23	0.406	0.293	0	0.286	Solvent loss during cooldown period.
	B														71.23	0.306	0.215	0	0.391	
71	A	3/22	MC	✓				50	0			0	✓	✓	14.08	0.264	0.190	0.35	0	Deg. A: Lip exhaust at 0.08 m^3/s per m^2 of top opening; Deg. B: Crosscurrent test.
	B			✓				50	0		0.43	0	✓	✓	14.08	1.851	1.323	0	0	
72	A	3/23	MC	✓	✓	✓		50	0			0	✓	✓	27.27	2.309	1.611	12.90	0.491	Deg. A: Lip exhaust at 0.50 m^3/s per m^2 of top opening; Deg. B: Crosscurrent test.
	B			✓	✓	✓		50	0		0.26	0	✓	✓	27.27	3.765	2.681	14.38	0.573	
73	A																			Not run.
	B																			Not run.
74	A	4/15	MC	✓	✓	✓		75	0.04		0.1	9.23	✓	✓	24.05	0.608	0.435	12.20	0.418	
	B			✓	✓	✓					0.1	9.23			24.05	0.871	0.625	14.38	0.635	

(continued)

TABLE B-1 (continued)

	TEST CONDITIONS[a]														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser (PC)	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), m/s	Load area (A), %	Air velocity at lip, m/s	Load cleaned,[c] kg/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), kg/h	Solvent loss, kg/h per m^2	Electric demand, kW	Water demand, liter/s	Comments
75	A	4/17	MC	✓	✓	✓	✓	75	0.04	50	0.1	9.23	✓	✓	24.05	0.726	0.522	12.96	0.418	
	B										0.1	9.23	✓	✓	24.05	0.590	0.415	15.35	0.635	
76	A	4/25	MC	✓	✓	✓		75	0			0	✓	✓	18.73	0.753	0.532	12.82	0.428	Deg. A: Lip exhaust at 0.25 m^3/s per m^2 top opening.
	B			✓	✓	✓		75	0		0.1	0	✓	✓	18.78	0.585	0.415	14.52	0.647	
77	A	4/26	MC	✓	✓	✓		75	0			0	✓	✓	19.00	0.975	0.693	13.11	0.431	Deg. A: Lip exhaust at 0.50 m^3/s per m^2 top opening; Deg. B: Crosscurrent test. Inlet air was turned on about 3 hours after test started.
	B			✓	✓	✓		75	0		0.26	0	✓	✓	19.13	2.232	1.592	14.59	0.418	
78a	A	5/8	MC			✓		50	0		0.1	0			21.28	0.100	0.073	0	0.516	
	B														21.28	0.109	0.078	0	0.478	
78b	A	5/9	MC			✓		50	0		0.1	0			23.36	0.070	0.049	0	0.515	
	B														23.36	0.114	0.083	0	0.477	
79	A	5/10	MC	✓		✓		125	0		0.1	0	✓	✓	20.17	0.227	0.161	0	0.560	
	B														20.17	0.191	0.137	0	0.581	
80	A	5/11	MC	✓		✓		100	0		0.1	0	✓	✓	70.63	0.202	0.146	0	0.606	
	B														70.63	0.169	0.122	0	0.555	
81	A	5/14	MC			✓		75	0		0.1	0	✓	✓	22.00	0.111	0.078	0	0.587	
	B														22.00	0.165	0.117	0	0.549	

(continued)

TABLE B-1 (continued)

	TEST CONDITIONS[a]														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser (PC)	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), m/s	Load area (A), %	Air velocity at lip, m/s	Load cleaned,[c] kg/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), kg/h	Solvent loss, kg/h per m²	Electric demand, kW	Water demand, liter/s	Comments
82	A	5/15	MC	✓		✓		75			0.1	0	✓	✓	19.40	0.201	0.146	0	0.581	
	B														19.40	0.176	0.127	0	0.536	
83	A	5/16	MC	✓		✓	✓	75			0.1	0	✓	✓	22.93	0.256	0.186		0.360	
	B														22.93	0.287	0.205	1.07	0.536	
84	A	5/22	TE	✓	✓	✓		75	0.04	50	0.1	9.23	✓	✓	24.05	0.953	0.698	15.85	0.214	Deg. A run at 18 kW instead of 24 kW.
	B														24.05	0.962	0.679	18.42	0.148	
85	A	5/23	TE	✓	✓	✓	✓	75	0.04	50	0.1	9.23	✓	✓	1.40	1.039	0.742	17.14	0.214	Test stopped early.
	B														1.40	0.712	0.508	20.50	0.146	
86	A	5/23	TE	✓	✓	✓	✓	75	0.04	50	0.1	9.23	✓	✓	19.95	0.953	0.684	20.56	0.166	
	B														19.95	0.544	0.405	18.61	0.135	
87	A	5/24	TE	✓	✓	✓		75	0.04	50	0.1	9.23	✓	✓	8.03	1.161	0.874	22.89	0.151	
	B			✓	✓	✓	✓	125	0.04	50	0.1	9.23	✓	✓	8.03	0.490	0.312	21.34	0.139	
88	A	5/25	TE	✓	✓	✓	✓	50	0.04	50	0.1	9.23	✓		8.17	1.134	0.767	23.12	0.150	
	B														8.17	0.980	0.693	20.77	0.136	
89	A	5/25	TE	✓	✓	✓		50	0.04	50	0.1	9.23	✓		8.00	0.848	0.493	20.35	0.150	
	B														8.00	0.916	0.654	19.80	0.134	

(continued)

TABLE B-1 (continued)

	TEST CONDITIONS[a]														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser (PC)	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), m/s	Load area (A), %	Air velocity at lip, m/s	Load cleaned,[c] kg/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), kg/h	Solvent loss, kg/h per m²	Electric demand, kW	Water demand, liter/s	Comments
90	A	5/31	TE	✓	✓	✓		75	0.04	50	0.1	9.23	✓	✓	8.00	0.744	0.427	22.90	0.196	
	B														8.00	0.503	0.317	20.26	0.136	
91	A	5/30	TE					50	0	0	0.1	0	✓		16.95	0.072	0.044	0	0	
	B			✓				50	0	0	0.1	0	✓		16.95	0.067	0.049	0	0	
92	A	5/29	TE	✓				50	0	0	0.1	0	✓		20.88	0.119	0.088	NA	0	
	B							50	0	0	0.1	0	✓		20.88	0.069	0.049	NA	0	
93	A																			Not run.
	C																			
94	A	6/18	TE	✓		✓		75	0	0	0.1	0	✓	✓	165.60	0.189	0.137	0	NA	Primary condenser water went off during test.
	C														165.60	0.029	0.020	0	NA	
95	A		TE	✓		✓		75	0	0	0.1	0	✓		24.00	0.027	0.020			
	C														24.00	0.004	0.016			
96	A		TE	✓				75	0.04	0	0.1	0	✓		24.00	0.327	0.235	23.78	0.185	
	C				✓	✓									24.00	0.127	0.091	4.17	0.021	
97	A																			Not run.
	C																			Not run.

(continued)

TABLE B-1 (continued)

	TEST CONDITIONS[a]														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser (PC)	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), m/s	Load area (A), %	Air velocity at lip, m/s	Load cleaned,[c] kg/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), kg/h	Solvent loss, kg/h per m^2	Electric demand, kW	Water demand, liter/s	Comments
98	D[e]	5/17	MC	✓					0	0	0.1	0			165.00		0.654	0	0	
	E[e]	5/24	MC	✓					0	0	0.1	0			28.03		0.898	0	0	

[a] Degreaser A and Degreaser B were operated under the same conditions except where differences are noted.

[b] Refrigerated freeboard chiller.

[c] Total load for Degreasers A and B: Load coil, 45.4 kg; basket, 22.7 kg.
Total load for Degreaser C: Load coil, 10.2 kg; basket, 2.3 kg.

[d] Solvent loss values for many of the idle tests are based on initial and final weight readings.

[e] Evaporation test in small containers. Containers D and E had 0.064 m^2 and 0.018 m^2 top opening area.

NA: Not available.

TABLE B-1a. TEST CONDITIONS AND RESULTS IN ENGLISH UNITS
(test period October 1978 to July 1979)

	TEST CONDITIONS[a]														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), ft/min	Load area (A), %	Air velocity at lip, ft/min	Load cleaned,[c] lb/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), lb/h	Solvent loss, lb/h per ft²	Electric demand, kW	Water demand, gal/min	Comments
1	A	10/10	TE	✓	✓	✓		50	8	50	20	9.23	✓		18.23	2.509	0.165	23.68	4.20	
	B														20.95	2.113	0.140	26.82	2.86	
2	A	10/12	TE					50	0	0	20	0			15.67	0.096[d]	0.006	NA	NA	
	B														15.67	0.096	0.006	NA	NA	
3	A	10/16	TE	✓				50	0	0	20	0			21.83	0.179	0.012	NA	NA	
	B														21.83	0.096	0.006	NA	NA	
4	A	10/19	TE	✓				50	0	0	20	0			19.27	0.108	0.007	NA	NA	
	B														19.27	0.068	0.005	NA	NA	
5	A	10/27	TE	✓				50	0	0	20	0			17.50	0.053	0.004	NA	NA	
	B														17.50	0.049	0.003	NA	NA	
6	A	11/3	TE	✓	✓	✓		50	8	50	20	9.23			3.07	2.534	0.174	NA	NA	
	B														3.03	1.934	0.165	NA	NA	
7	A	11/12	TE	✓	✓	✓		50	8	50	20	9.23	✓		24.00	2.270	0.151	23.27	4.07	
	B														23.91	2.314	0.154	21.47	2.59	
8	A	11/13	TE	✓	✓	✓		50	8	50	20	9.23	✓	✓	14.67	2.280	0.152	23.24	4.01	
	B														14.68	2.130	0.141	20.66	2.09	

(continued)

TABLE B-1a (continued)

	TEST CONDITIONS [a]														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), ft/min	Load area (A), %	Air velocity at lip, ft/min	Load cleaned,[c] lb/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), lb/h	Solvent loss, lb/h per ft^2	Electric demand, kW	Water demand, gal/min	Comments
9	A	11/14	TE	✓	✓	✓		50	0	0	20	0	✓		7.93	1.804	0.120	21.85	4.41	
	B														7.92	0.940	0.062	19.44	3.17	
10	A	11/15	TE	✓	✓	✓	✓	50	0	0	20	0	✓		7.10	1.456	0.097	23.07	4.38	
	B														7.08	2.765	0.183	21.06	2.85	
11	A	11/15	TE	✓	✓	✓	✓	50	8	50	20	0	✓		7.05	2.920	0.195	23.76	4.31	
	B														7.10	1.858	0.075	21.03	2.12	Results discarded.
12	A	11/16	TE		✓	✓	✓	50	0	0	20	0	✓		7.15	0.321	(0.013)	22.90	4.40	Results discarded.
	B														7.20	2.149	0.142	20.09	2.08	
13	A	11/16	TE		✓	✓		50	0	0	20	0	✓		7.07	0.704	0.047	22.98	4.95	
	B														6.05	0.876	0.058	20.50	2.23	
14	A	11/17	TE	✓	✓	✓	✓	50	8	50	20	9.23	✓		5.72	3.330	0.222	22.64	4.53	
	B														5.93	1.430	0.095	18.62	2.22	
15	A	11/20	TF	✓	✓	✓		50	8	50	20	2	✓		8.03	1.092	0.073	21.36	NA	Top was closed one half hour between each load cycle.
	B										20	2			6.33	1.237	0.102	18.38	1.77	
16	A	11/20	TE	✓	✓	✓	✓	50	0	0	20	0	✓		6.95	1.440	0.096	23.64	NA	
	B														6.93	1.210	0.080	21.56	1.95	

(continued)

TABLE B-1a (continued)

	TEST CONDITIONS [a]														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), ft/min	Load area (A), %	Air velocity at lip, ft/min	Load cleaned,[c] lb/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), lb/h	Solvent loss, lb/h per ft^2	Electric demand, kW	Water demand, gal/min	Comments
17	A	11/21	TE	✓	✓	✓	✓	75	0	0	20	0	✓		6.97	1.070	0.071	24.84	NA	
	B														6.98	0.660	0.044	22.51	NA	
18	A	11/21	TE	✓	✓	✓	✓	75	8	50	20	9.23	✓		6.95	2.140	0.143	22.64	NA	
	B														6.90	1.800	0.119	20.53	NA	
19	A	11/22	TE	✓	✓	✓	✓	50	8	50	20	9.23	✓		5.97	2.430	0.162	22.67	NA	
	B														5.97	2.310	0.153	20.99	NA	
20	A	11/26	TE	✓	✓	✓		50	8	70	20	9.23	✓		5.93	2.823	0.185	24.06	NA	
	B														5.10	2.301	0.155	20.15	2.61	
21	A																			Not run
	B																			
22	A	12/21	TE	✓	✓	✓		75	8	50	20	9.23	✓		5.83	1.399	0.093	22.88	6.88	
	B														11.82	1.336	0.119	20.57	2.45	
23	A	12/22	TE	✓	✓	✓		100	8	50	20	9.23	✓		10.88	1.222	0.081	21.53	4.31	
	B														10.50	1.031	0.071	18.85	1.92	
24	A																			Not run
	B																			
25	A	1/15	TE	✓	✓	✓	✓	50	8	50	20	9.23	✓	✓	25.83	1.775	0.121	24.55	3.85	
	B														26.22	1.936	0.127	20.79	2.02	

(continued)

TABLE B-1a (continued)

	TEST CONDITIONS[a]													TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), ft/min	Load area (A), %	Air velocity at lip, ft/min	Load cleaned,[c] lb/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), lb/h	Solvent loss, lb/h per ft²	Electric demand, kW	Water demand, gal/min	Comments
26	A	1/18	TE	✓	✓	✓	✓	50	8	70	20	9.23	✓	✓	24.23	1.886	0.129	NA	NA	Extensive problems with Degreaser A.
	B																	18.38	2.13	
27	A	1/19	TE	✓	✓	✓	✓	50	8	70	20	9.23	✓	✓				NA	NA	Results discarded.
	B																	NA	NA	
28	A	1/20	TE	✓	✓	✓	✓	125	8	70	20	9.23	✓	✓	24.20	1.676	0.111	24.3	2.03	
	B														24.25	1.435	0.097	22.07	2.19	
29	A	1/21	TE	✓	✓	✓	✓	125	8	70	20	9.23	✓	✓	24.10	2.369	0.160	22.76	3.01	
	B														24.26	2.122	0.140	19.03	2.0	
30	A	1/26	TE	✓	✓	✓	✓	125	8	50	20	9.23	✓	✓	25.40	1.495	0.102	24.33	2.63	
	B														26.40	1.160	0.089	20.81	2.03	
31	A	1/25	TE	✓	✓	✓		125	8	50	20	9.23	✓	✓	24.07	2.259	0.182	23.35	1.56	Results discarded.
	B														16.28	1.543	0.106	0.32	1.32	
32	A	1/28	TE	✓	✓	✓		125	16	50	20	9.23	✓	✓	18.87	1.654	0.125	NA	NA	
	B			✓	✓	✓		100	16	50	20	9.23			18.87	2.005	0.128	NA	NA	
33	A	1/29	TE	✓	✓	✓		125	16	70	20	9.23	✓	✓	18.40	2.406	0.166	24.04	1.26	
	B			✓	✓	✓		75	16	50	20	9.23			18.40	1.850	0.115	21.16	1.32	
34	A	1/31	TE	✓	✓	✓	✓	50	8	50	20	9.23	✓	✓	18.20	1.885	0.126	24.64	2.16	
	B														18.47	2.082	0.136	22.69	1.26	

(continued)

TABLE B-1a (continued)

	TEST CONDITIONS^a														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser	RFC^b	Freeboard ratio (FR), %	Hoist speed (V), ft/min	Load area (A), %	Air velocity at lip, ft/min	Load cleaned,^{c} lb/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), lb/h	Solvent loss, lb/h per ft^2	Electric demand, kW	Water demand, gal/min	Comments
35	A	2/2	TE	✓	✓	✓		50	16	50	20	9.23	✓	✓	20.28	2.553	0.163	24.07	3.06	Top on Degreaser B left open between each cycle.
	B			✓	✓	✓		50	8	50	20	2	✓	✓	20.33	1.141	0.070	21.30	2.35	
36	A	2/4	TE	✓	✓	✓		50	16	70	20	9.23	✓	✓	18.17	3.443	0.229	24.67	2.97	
	B																			Degreaser B not used.
37	A	4/1	MC	✓	✓	✓		50	8	50	20	9.23	✓	✓	23.85	1.710	0.114	12.00	6.80	
	B		MC												23.78	2.320	0.153	14.40	10.07	
38	A	4/2	MC	✓	✓	✓	✓	50	8	50	20	9.23		✓	24.13	1.940	0.129	13.00	6.50	
	B		MC												24.13	1.960	0.121	15.36	10.02	
39	A	4/4	MC	✓	✓	✓		50	8	70	20	9.23	✓	✓	24.08	2.590	0.172	12.00	6.45	
	B		MC												24.08	3.550	0.234	14.40	9.88	
40	A	4/5	MC	✓	✓	✓	✓	50	8	70	20	9.23	✓	✓	24.25	2.372	0.158	12.99	6.61	
	B		MC												24.25	2.440	0.160	15.38	10.08	
41	A	4/11	MC	✓	✓	✓		125	8	50	20	9.23	✓	✓	24.17	1.290	0.086	12.56	6.85	
	B		MC												24.17	1.710	0.115	14.42	10.41	
42	A	4/12	MC	✓	✓	✓	✓	125	8	50	20	9.23	✓	✓	24.03	1.290	0.086	13.04	6.64	
	B		MC												24.08	0.897	0.059	15.44	10.11	

(continued)

TABLE B-1a (continued)

	TEST CONDITIONS[a]														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), ft/min	Load area (A), %	Air velocity at lip, ft/min	Load cleaned,[c] lb/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), lb/h	Solvent loss, lb/h per ft^2	Electric demand, kW	Water demand, gal/min	Comments
43	A	4/9	MC	✓	✓	✓		125	8	70	20	9.23	✓	✓	24.00	1.550	0.103	12.19	6.63	
	B		MC												24.00	2.140	0.142	14.39	10.08	
44	A	4/8	MC	✓	✓	✓	✓	125	8	70	20	9.23	✓	✓	24.03	1.330	0.089	12.92	6.64	
	B		MC								20				24.03	1.290	0.085	15.33	10.08	
45	A	3/28	MC	✓	✓	✓		50	8	50		9.23			24.46	4.260	0.281	12.89	7.55	Deg. A: Lip exhaust at 100 ft^3/min per ft^2 top opening.
	B		MC																	Deg. B: Not run.
46	A	3/29	MC	✓	✓	✓		50	8	50		9.23	✓	✓	24.03	3.600	0.240	12.69	7.35	Deg. A: Lip exhaust at 50 ft^3/min per ft^2 top opening.
	B		MC	✓	✓	✓		50	8	50	20	9.23	✓	✓	24.03	2.160	0.143	14.14	9.96	Deg. B: Crosscurrent test.
47	A		MC																	Not run.
	B	3/28	MC	✓	✓	✓		50	8	50	52	9.23	✓	✓	24.46	4.887	0.328	NA	NA	Crosscurrent test.
48	A	6/12	TE	✓	✓	✓		75	8	50	20	9.23	✓	✓	24.03	2.236	0.146	14.65	10.99	Crosscurrent test.
	C		TE	✓	✓	✓		75	8	50	20	9.23	✓	✓	16.92	0.429	0.028	4.08	2.25	Test of small degreaser.
49	A																			Not run.
	B																			Not run.
50	A	2/16	MC	✓	✓	✓		50	0	0	20	9.23	✓	✓	18.60	0.939	0.065	12.41	7.27	
	B		MC												18.08	1.078	0.073	15.30	7.26	

(continued)

TABLE B-1a (continued)

	TEST CONDITIONS[a]													TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), ft/min	Load area (A), %	Air velocity at lip, ft/min	Load cleaned,[c] lb/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), lb/h	Solvent loss, lb/h per ft^2	Electric demand, kW	Water demand, gal/min	Comments
51	A	2/25	MC		✓	✓		50	0	0	20	0	✓	✓	19.73	0.644	0.043	12.35	8.95	
	B		MC												19.73	0.785	0.052	14.55	11.54	
52	A	2/22	MC	✓		✓		50	0	0	20	0	✓	✓	20.68	0.314	0.32	0	0	
	B														20.68	0.479	0.21	0	0	
53	A	2/25	MC					50	0	0	20	0	✓	✓	43.63	0.328	0.022	0	1.20	Solvent loss during cooldown period.
	B														42.87	0.243	0.018	0	6.56	
54	A	2/27	MC			✓	✓	50	0	0	20	0	✓	✓	21.12	0.573	0.038	0.69	8.01	Solvent loss during cooldown period.
	B														20.98	0.257	0.017	0.938	18.51	
55	A																			Not run.
	B																			Not run.
56	A																			Not run.
	B																			Not run.
57	A	3/2	MC	✓		✓	✓	50	0	0	20	0	✓	✓	25.08	0.526	0.035	0.789	2.86	Solvent loss during cooldown period.
	B														25.08	0.860	0.225	1.092	7.82	
58	A	3/1	MC	✓	✓	✓	✓	50	0	0	20	0	✓	✓	22.72	1.427	0.095	12.88	6.77	
	B		MC												22.72	0.666	0.045	15.27	8.08	

(continued)

TABLE B-1a (continued)

	TEST CONDITIONS[a]													TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), ft/min	Load area (A), %	Air velocity at lip, ft/min	Load cleaned,[c] lb/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), lb/h	Solvent loss, lb/h per ft^2	Electric demand, kW	Water demand, gal/min	Comments
59	A	3/3	MC	✓		✓		50	0	0	20	0	✓	✓	51.02	0.418	0.027	0	2.52	
	B		MC												51.02	0.328	0.022	0	6.31	
60	A	3/5	MC	✓		✓	✓	50	0	0	20	0	✓	✓	21.55	0.457	0.031	0.82	2.48	
	B		MC												21.55	0.754	0.050	1.12	6.65	
61	A	3/6	MC	✓				50	0	0	20	0	✓	✓	22.37	0.510	0.034	0	0	
	B		MC												22.37	0.476	0.030	0	0	
62	A	3/7	MC	✓	✓	✓		50	0	0	20	0	✓	✓	17.43	1.079	0.071	12.30	6.61	
	B		MC												17.43	1.213	0.078	14.51	7.44	
63	A	3/8	MC	✓	✓	✓	✓	50	0	0	20	0	✓	✓	22.45	1.365	0.091	12.97	7.76	
	B		MC												22.45	0.742	0.051	14.91	9.23	
64	A	3/10	MC	✓	✓	✓		75	0	0	20	0	✓	✓	24.68	0.732	0.05	12.25	7.76	
	B		MC												25.97	1.052	0.072	14.51	9.19	
65	A	3/11	MC	✓	✓	✓		100	0	0	20	0	✓	✓	21.50	0.839	0.055	12.34	7.77	
	B		MC												21.50	0.947	0.064	14.56	9.19	
66	A	3/12	MC	✓		✓		100	0	0	20	0	✓	✓	21.03	0.330	0.022	0	7.76	Solvent loss during cooldown period.
	B		MC												20.03	0.395	0.026	0	9.16	

(continued)

TABLE 5-1a (continued)

	TEST CONDITIONS[a]													TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), ft/min	Load area (A), %	Air velocity at lip, ft/min	Load cleaned,[c] lb/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), lb/h	Solvent loss, lb/h per ft^2	Electric demand, kW	Water demand, gal/min	Comments
67	A	3/13	MC	✓	✓	✓	✓	100	0		20	0	✓	✓	14.07	0.709	0.047	12.91	7.44	
	B														24.95	0.596	0.034	14.74	8.81	
68	A	3/14	MC	✓		✓	✓	100	0		20	0	✓	✓	24.17	0.425	0.028	0.36	5.86	
	B														23.25	0.563	0.037	1.09	9.18	
69	A	3/15	MC	✓	✓	✓		125	0		20	0	✓	✓	19.65	0.799	0.053	12.35	6.50	
	B														19.65	1.221	0.08	14.55	9.17	
70	A	3/16	MC	✓		✓		125	0		20	0	✓	✓	71.23	0.894	0.060	0	4.53	Solvent loss during cooldown period.
	B														71.23	0.675	0.044	0	6.20	
71	A	3/22	MC	✓				50	0			0	✓	✓	14.08	0.582	0.039	0.35	0	Deg. A: Lip exhaust at 16 ft^3/min per ft^2 of top opening; Deg. B: Crosscurrent test.
	B			✓				50	0		84	0	✓	✓	14.08	4.076	0.271	0	0	
72	A	3/23	MC	✓	✓	✓		50	0			0	✓	✓	27.27	5.090	0.33	12.90	7.78	Deg. A: Lip exhaust at 100 ft^3/min per ft^2 of top opening; Deg. B: Crosscurrent test.
	B			✓	✓	✓		50	0		52	0	✓	✓	27.27	8.304	0.549	14.38	9.08	
73	A																			Not run.
	B																			Crosscurrent test. Not run.
74	A	4/15	MC	✓	✓	✓		75	8	50	20	9.23	✓	✓	24.05	1.336	0.089	12.20	6.63	
	B			✓	✓	✓					20	9.23			24.05	1.917	0.128	14.38	10.07	

(continued)

TABLE B-1a (continued)

	TEST CONDITIONS[a]														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), ft/min	Load area (A), %	Air velocity at lip, ft/min	Load cleaned,[c] lb/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), lb/h	Solvent loss, lb/h per ft²	Electric demand, kW	Water demand, gal/min	Comments
75	A	4/17	MC	✓	✓	✓	✓	75	8	50	20	5.23	✓	✓	24.05	1.603	1.07	12.96	6.62	
	B										20	9.23	✓	✓	24.05	1.299	0.085	15.35	10.06	
76	A	4/25	MC	✓	✓	✓		75	0			0	✓	✓	18.73	1.660	0.109	12.82	6.78	Deg. A: Lip exhaust at 50 ft³/min per ft² top opening.
	B			✓	✓	✓		75	0		20	0	✓	✓	18.78	1.288	0.085	14.52	10.25	
77	A	4/26	MC	✓	✓	✓		75	0			0	✓	✓	19.00	2.147	0.142	13.11	6.83	Deg. A: Lip exhaust at 100 ft³/min per ft² top opening; Deg. B: Cross-current test.
	B			✓	✓	✓		75	0		52	0	✓	✓	19.13	4.923	0.326	14.59	6.63	
78a	A	5/8	MC			✓		50	0		20	0			21.28	0.221	0.015	0	8.18	Inlet air was turned on about 3 hours after test started.
	B														21.28	0.240	0.016	0	7.57	
78b	A	5/9	MC			✓		50	0		20	0			23.36	0.154	0.010	0	8.16	
	B														23.36	0.252	0.017	0	7.56	
79	A	5/10	MC	✓		✓		125	0		20	0	✓	✓	20.17	0.501	0.033	0	9.50	
	B														20.17	0.426	0.028	0	9.20	
80	A	5/11	MC	✓		✓		100	0		20	0	✓	✓	70.63	0.446	0.030	0	9.60	
	B														70.63	0.372	0.025	0	8.80	
81	A	5/14	MC			✓		75	0		20	0	✓	✓	22.00	0.245	0.016	0	9.30	
	B														22.00	0.364	0.024	0	8.70	

(continued)

TABLE B-1a (continued)

	TEST CONDITIONS^a														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser	RFC^b	Freeboard ratio (FR), %	Hoist speed (V), ft/min	Load area (A), %	Air velocity at lip, ft/min	Load cleaned,^{c} lb/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), lb/h	Solvent loss, lb/h per ft^2	Electric demand, kW	Water demand, gal/min	Comments
82	A	5/15	MC	✓		✓		75			20	0	✓	✓	19.40	0.443	0.030	0	9.20	
	B														19.40	0.387	0.026	0	8.50	
83	A	5/16	MC	✓		✓	✓	75			20	0	✓	✓	22.93	0.563	0.038		5.70	
	B														22.93	0.632	0.042	1.07	8.50	
84	A	5/22	TE	✓	✓	✓		75	8	50	20	9.23	✓	✓	24.05	2.085	0.143	15.05	3.40	Deg. A run at 18 kW instead of 24 kW.
	B														24.05	2.190	0.139	18.42	2.34	
85	A	5/23	TE	✓	✓	✓	✓	75	8	50	20	9.23	✓	✓	1.40	2.286	0.152	17.16	3.39	Test stopped early.
	B														1.40	1.571	0.104	20.5	2.32	
86	A	5/23	TE	✓	✓	✓	✓	75	8	50	20	9.23	✓	✓	**19.95**	2.104	0.140	20.56	2.63	
	B														19.95	1.201	0.083	19.61	2.14	
87	A	5/24	TE	✓	✓	✓		75	8	50	20	9.23	✓	✓	8.03	2.455	0.179	22.89	2.40	
	B			✓	✓	✓	✓	125	8	50	20	9.23	✓	✓	8.03	1.082	0.064	21.36	2.20	
88	A	5/25	TE	✓	✓	✓	✓	50	8	50	20	9.23	✓		8.167	2.504	0.157	23.12	2.38	
	B														8.167	2.163	0.142	20.77	2.16	
89	A	5/25	TE	✓	✓	✓		50	8	50	20	9.23	✓		8.00	1.869	0.101	20.35	2.37	
	B														8.00	2.022	0.134	19.8	2.12	

(continued)

TABLE B-1a (continued)

	TEST CONDITIONS[a]														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser	RFC[b]	Freeboard ratio (FR), %	Hoist speed (V), ft/min	Load area (A), %	Air velocity at lip, ft/min	Load cleaned,[c] lb/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), lb/h	Solvent loss, lb/h per ft^2	Electric demand, kW	Water demand, gal/min	Comments
90	A	5/31	TE	✓	✓	✓		75	8	50	20	9.23	✓	✓	8.00	1.642	0.108	22.9	3.11	
	B														8.00	1.106	0.065	20.26	2.16	
91	A	5/30	TE					50	0	0	20	0	✓		16.95	0.159	0.009	0	0	
	B							50	0	0	20	0	✓		16.95	0.147	0.010	0	0	
92	A	5/29	TE	✓				50	0	0	20	0	✓		20.88	0.263	0.018	NA	0	
	B			✓				50	0	0	20	0	✓		20.88	0.153	0.010	NA	0	
93	A																			Not run.
	C																			
94	A	6/18	TE	✓		✓		75	0	0	20	0	✓	✓	165.60	0.417	0.028	0	NA	Primary condenser water went off during test.
	C														165.50	0.064	0.004	0	NA	
95	A		TE	✓		✓		75	0	0	20	0	✓		24.00	0.060	0.004	0		
	C														24.00	0.009	0.003	0		
96	A	7/19	TE	✓	✓	✓		75	0	0	20	0	✓		24.00	0.720	0.048	23.78	2.93	
	C														24.00	0.280	0.074	4.17	0.33	

TABLE B-1a (continued)

	TEST CONDITIONS[a]														TEST RESULTS					
Test No.	Degreaser	Test date	Solvent type	Lid open	Solvent boiling	Primary condenser	RFC[b]	Freeboard ratio (FR),	Hoist speed (V), ft/min	Load area (A), ft^2	Air velocity at lip, ft/min	Load cleaned,[c] lb/h	Exhaust air on	Inlet air on	Test length, h	Solvent loss (regression line slope), lb/h	Solvent loss, lb/h per ft^2	Electric demand, kW	Water demand, gal/min	Comments
97	A																			Not run.
	C																			
98	D[e]	5/17	MC	✓					0	0	20	0			165.00		0.134	0	0	
	E[e]	5/24	MC	✓					0	0	20	0			28.03		0.184	0	0	

[a] Degreaser A and Degreaser B were operated under the same conditions except where differences are noted.

[b] Refrigerated freeboard chiller.

[c] Total load for Degreasers A and B: Load coil, 100 lb; basket, 50 lb.
Total load for Degreaser C: Load coil, 22.5 lb; basket, 5 lb.

[d] Solvent loss values for many of the idle tests are based on initial and final weight readings.

[e] Evaporation test in small containers. Containers D and E had 0.69 ft^2 and 0.194 ft^2 top area.

NA: Not available.

APPENDIX C

STATISTICAL COMPARISONS BY TEST OF SIGNIFICANCE*

THE TEST OF NULL HYPOTHESIS (TEST OF SIGNIFICANCE)

A null hypothesis is a specific hypothesis about a population that is being tested by means of the sample results. A test of significance is a calculation by which the sample results are used to throw light on the truth or falsity of a null hypothesis. A quantity called a test criterion is computed; it measures the extent to which the sample departs from the null hypothesis in some relevant respect. If the value of the test criterion falls beyond certain limits into a region of rejection, the departure is said to be statistically significant. Tests of significance have the property that if the null hypothesis is true, the probability of obtaining a significant result has a known value, most commonly 0.05. This probability is the significance level of the test.

Of course, the test of significance is not an automatic rule for making a decision to either accept or reject a null hypothesis. Knowledge accumulated through the work should be added to the evidence of the test.

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* This analysis is based on standard statistical methods. See Svedecov, G. W., and W. G. Cochran. Statistical Methods. The Iowa State University Press, Ames, Iowa, 1967.

In this appendix, the test is used to determine the significance of differences between the rates of solvent loss from Degreaser A and Degreaser B, between rates obtained with the use of refrigerated freeboard chillers, and between rates obtained with the different solvents.

TEST OF SIGNIFICANCE APPLIED TO DEGREASER A AND DEGREASER B (TWO SAMPLES TREATED AS INDEPENDENT)

Data Points From Tests Using 1,1,1-Trichloroethane

Data points representing solvent loss are shown in Table C-1.

Pooled estimate of variance (with samples of same size, n = 13):

$$S^2 = \left(\frac{S_1{}^2 + S_2{}^2}{2}\right) = \frac{(0.436)^2 + (0.390)^2}{2}$$

$$= 0.171$$

Number of degrees of freedom = 2(n-1) = 2(13-1) = 24

Standard deviation of differences:

$$S_{\overline{x_1 - x_2}} = \sqrt{\frac{2S^2}{n}} = \sqrt{\frac{2 \times 0.171}{13}}$$

$$= 0.162$$

$$\text{Student 't'} = \frac{x_1 - x_2}{S_{\overline{x_1 - x_2}}} = \frac{0.079}{0.162} = 0.488$$

From statistical tables, it is known that an absolute value of t = 0.685 is exceeded 50 percent of the time. The test thus provides no evidence upon which to reject the null hypothesis that the difference between Degreaser A and Degreaser B in rate of solvent loss is zero.

TABLE C-1. TEST OF SIGNIFICANCE APPLIED TO DEGREASERS A AND B USING 1,1,1-TRICHLOROETHANE

Test Group No.	Solvent loss rate, kg/h: From Degreaser A: x_1	Solvent loss rate, kg/h: From Degreaser B: x_2	Difference: x_1-x_2
1	1.04	1.00	0.04
2	1.28	1.04	0.24
3	0.97	0.75	0.22
4	0.55	0.47	0.08
5	1.08	0.96	0.12
24	0.82	0.43	0.39
25	0.05	0.05	0
26	0.32	0.40	-0.08
27	0.05	0.03	0.02
28	0.66	0.90	-0.24
29	0.49	0.30	0.19
30 and 33	0.12	0.07	0.05
31 and 32	0.07	0.07	0
No. of observations (n)	13	13	
Mean	$\bar{x}_1 = 0.577$	$\bar{x}_2 = 0.498$	$\overline{x_1-x_2} = 0.079$
Std. deviation	$S_1 = 0.436$	$S_2 = 0.390$	$S_3 = 0.159$
d·f	12	12	

Data Points From Tests Using Methylene Chloride

Data points representing solvent loss are given in Table C-2.

Pooled estimate of variance (with samples of same size, n = 10):

$$S^2_{\overline{x_1 - x_2}} = \frac{(0.209)^2 + (0.336)^2}{2} = 0.078$$

$$S_{\overline{x_1 - x_2}} = \sqrt{\frac{2(0.078)}{10}} = 0.125$$

Number of degrees of freedom = 2(10-1) = 18

$$\text{Student 't'} = \frac{\bar{x}_1 - \bar{x}_2}{S_{\overline{x_1 - x_2}}} = \frac{-0.113}{0.125} = -0.904$$

From statistical tables, it is known that an absolute value of t = 0.865 is exceeded 45 percent of the time. The test thus provides no evidence upon which to reject the null hypothesis that the difference between Degreaser A and Degreaser B in rate of solvent loss is zero.

TEST OF SIGNIFICANCE APPLIED TO REFRIGERATED FREEBOARD CHILLERS

The test of significance lacks validity in the following two cases because only two or three data points are available. It is given here, however, for the limited purpose of comparing results obtained with refrigerated freeboard chillers.

Table C-3 presents data points from tests using Refrigerated Freeboard Chillers I and II.

For d·f = 3, the 't' values in the critical region at 95 percent confidence level are $-3.182 < t < 3.182$ (from statistical tables).

TABLE C-2. TEST OF SIGNIFICANCE APPLIED TO DEGREASERS A AND B USING METHYLENE CHLORIDE

Test Group No.	Solvent loss rate, kg/h		Difference: $x_1 - x_2$
	From Degreaser A: x_1	From Degreaser B: x_2	
34	0.78	1.05	-0.27
35	0.61	0.87	-0.26
36	0.59	0.78	-0.19
37	1.17	1.61	-0.44
38	0.70	0.97	-0.27
43	0.88	0.89	-0.01
44	0.73	0.59	0.14
45	0.59	0.41	0.18
46	1.08	1.10	-0.02
47	0.60	0.59	0.01
No. of observations (n)	10	10	
Mean	$\bar{x}_1 = 0.773$	$\bar{x}_2 = 0.886$	$(\overline{x_1 - x_2}) = -0.113$
Std. deviation	$S_1 = 0.209$	$S_2 = 0.336$	$S = 0.202$
d·f	9	9	

TABLE C-3. TEST OF SIGNIFICANCE APPLIED TO REFRIGERATED FREEBOARD CHILLERS I AND II (TREATED AS PAIRED SAMPLES)

Test Group No.	Solvent loss rate, kg/h From RFC I: x_1	 From RFC II: x_2	Difference: $x_1 - x_2$
16	0.99	0.92	0.07
17	0.96	0.82	0.14
18	0.68	0.53	0.15
20	0.76	0.66	0.10
Mean	0.848	0.733	0.115
Std. deviation	0.151	0.172	0.037

$$t = \frac{d}{S_d / \sqrt{n}} = \frac{\Sigma(x_1 - x_2)}{nS_d / \sqrt{n}} = \frac{\Sigma(x_1 - x_2)}{S_d \sqrt{n}}$$

$$= \frac{0.115}{0.037 \sqrt{4}} = 1.554$$

The computed t = 1.554 is not within the critical region; therefore, it can be concluded that there is no significant difference between the two types of chillers at 95 percent confidence limits.

Table C-4 presents data points from tests using RFC II at the two temperature ranges.

For d·f = 2, the 't' values in the critical region are $-4.303 < t < 4.303$.

$$'t' = \frac{0.086}{0.175 \sqrt{3}} = 0.284$$

The computed t = 0.284 is within the critical region at 95 percent confidence limits. It can thus be concluded that RFC II at -29° to -40°C is not superior to RFC II at -23° to -32°C.

TEST OF SIGNIFICANCE APPLIED TO SOLVENTS 1,1,1-TRICHLOROETHANE AND METHYLENE CHLORIDE (TWO SAMPLES TREATED AS INDEPENDENT)

Data Points From Tests Conducted On Degreaser A

Data points representing solvent loss are shown in Table C-5.

Pooled estimate of variance (with ten samples):

$$S^2 = \frac{S_1^2 + S_2^2}{2} = \frac{(0.314)^2 + (0.258)^2}{2} = 0.083$$

Number of degrees of freedom = 2(n-1) = 2(10-1) = 18

TABLE C-4. TEST OF SIGNIFICANCE APPLIED TO REFRIGERATED FREEBOARD CHILLER II BEFORE AND AFTER CORRECTION (TREATED AS PAIRED SAMPLES)

	Solvent loss rate (kg/h) from Refrigerated Freeboard Chiller II		
Test Group No.	Before correction: x_1	After correction: x_2	Difference: $x_1 - x_2$
16 and 21	0.92	0.98	-0.06
17 and 22	0.82	0.54	0.28
18 and 23	0.53	0.49	0.04
Mean	0.76	0.67	0.087
Std. deviation	0.203	0.27	0.175

TABLE C-5. TEST OF SIGNIFICANCE APPLIED TO SOLVENTS 1,1,1-TRICHLOROETHANE AND METHYLENE CHLORIDE IN DEGREASER A

Test Group No.	Solvent loss rate, kg/h Using TE: x_1	Solvent loss rate, kg/h Using MC: x_2	Difference: $x_1 - x_2$
1 and 34	1.04	0.78	0.26
2 and 37	1.28	1.17	0.11
3 and 35	0.97	0.61	0.36
5 and 38	1.08	0.70	0.38
16 and 43	0.99	0.88	0.11
17 and 44	0.96	0.73	0.23
18 and 45	0.68	0.59	0.09
20 and 47	0.76	0.60	0.16
24 and 48	0.82	0.44	0.38
30 and 61	0.12	0.20	-0.08

No. of observations (n)	10	10	
Mean	$\bar{x}_1 = 0.87$	$\bar{x}_2 = 0.67$	$\overline{x_1 - x_2} = 0.2$
Std. deviation	$S_1 = 0.314$	$S_2 = 0.258$	$S_3 = 0.15$
d · f	9	9	

Standard deviation of differences:

$$S_{\overline{x_1 - x_2}} = \sqrt{\frac{2S^2}{n}} = \sqrt{\frac{2(0.083)}{10}} = 0.129$$

$$\text{Student 't'} = \frac{\bar{x}_1 - \bar{x}_2}{S_{\overline{x_1 - x_2}}} = \frac{0.20}{0.129} = 1.55$$

From statistical tables, it is known that an absolute value of t = 1.734 is exceeded 10 percent of the time.

Data Points From Tests Conducted On Degreaser B

Data points representing solvent loss are shown in Table C-6.

Pooled estimate of variance (with ten samples):

$$S^2 = \frac{S_1{}^2 + S_2{}^2}{2} = \frac{(0.707)^2 + (0.758)^2}{2} = 0.537$$

Number of degrees of freedom = 2(n-1) = 2(10-1) = 18

Standard deviation differences:

$$S_{\overline{x_1 - x_2}} = \sqrt{\frac{2S^2}{n}} = \sqrt{\frac{2(0.537)}{10}} = 0.328$$

$$\text{Student 't'} = \frac{\bar{x}_1 - \bar{x}_2}{S_{\overline{x_1 - x_2}}} = \frac{-0.051}{0.328} = -0.156$$

From statistical tables, it is known that an absolute value of t = 0.257 is exceeded 80 percent of the time. The test thus provides no evidence upon which to reject the null hypothesis that the difference between solvent loss rates using trichloroethane and methylene chloride is zero.

TABLE C-6. TEST OF SIGNIFICANCE APPLIED TO SOLVENTS 1,1,1-TRICHLOROETHANE AND METHYLENE CHLORIDE IN DEGREASER B

Test Group No.	Solvent loss rate, kg/h		Difference: $x_1 - x_2$
	Using TE: x_1	Using MC: x_2	
1 and 34	1.00	1.05	-0.05
2 and 37	1.04	1.17	-0.13
3 and 35	0.75	0.87	-0.12
5 and 38	0.96	0.97	-0.01
21 and 43	0.98	0.89	0.09
22 and 44	0.54	0.59	-0.05
23 and 45	0.49	0.41	0.08
19 and 46	0.86	1.11	-0.25
20 and 47	0.66	0.59	0.07
24 and 48	0.43	0.54	-0.11
33 and 61	0.07	0.15	-0.08

No. of observations (n)	11	11	
Mean	$\bar{x}_1 = 0.707$	$\bar{x}_2 = 0.758$	$\overline{x_1 - x_2} = 0.051$
Std. deviation	$S_1 = 0.303$	$S_2 = 0.324$	$S_3 = 0.104$
d · f	9	9	

APPENDIX D

SUMMARY OF COST ANALYSIS

TABLE D-1 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW) OR RETROFIT

Test Group 1

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum				
Maximum				
Capital cost, $				
Purchase of modification	0			
Installation cost				
Engineering and startup				
Total	0			
Annual operating cost, $				
Capital charges		0	0	0
Insurance and taxes				
Maintenance and labor				
Replacement parts				
Utilities				
Credit (expenditure) due to solvent savings (loss):				
Minimum				
Maximum				
Net profit (loss), $/yr:				
Minimum				
Maximum				
Ratio of savings (expenditure) to cost:				
Minimum				
Maximum				
Payback period, months:				
at minimum solvent savings				
at maximum solvent savings	—	0	0	0
Lost capacity, %				

[a] Value in parentheses represents loss or expenditure.

TABLE D-2 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 3

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	75			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		140	280	420
Maximum		480	960	1440
Capital cost, $				
Purchase of modification	230.00			
Installation cost	0			
Engineering and startup	0			
Total	230.00			
Annual operating cost, $				
Capital charges		33.75	33.75	33.75
Insurance and taxes		9.20	9.20	9.20
Maintenance and labor		4.60	4.60	4.60
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		98.76	197.53	296.30
Maximum		338.63	677.26	1015.89
Net profit (loss), $/yr:				
Minimum		51.20	149.98	248.75
Maximum		291.08	629.70	968.34
Ratio of savings (expenditure) to cost:				
Minimum		1.08	3.15	5.23
Maximum		6.12	13.24	20.34
Payback period, months:				
at minimum solvent savings		39.22	16.32	10.30
at maximum solvent savings		8.90	4.25	2.79
Lost capacity, %		6	6	6

[a] Value in parentheses represents loss or expenditure.

[b] Includes $80.00 for worker platform revisions.

TABLE D-3 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 3

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	75			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		140	280	420
Maximum		480	960	1440
Capital cost, $				
Purchase of modification				
Installation cost				
Engineering and startup				
Total	355.00[b]			
Annual operating cost, $				
Capital charges		52.10	52.10	52.10
Insurance and taxes		14.20	14.20	14.20
Maintenance and labor		7.10	7.10	7.10
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		98.77	197.53	296.30
Maximum		338.63	677.26	1015.89
Net profit (loss), $/yr:				
Minimum		25.37	124.13	222.90
Maximum		265.23	603.86	942.49
Ratio of savings (expenditure) to cost:				
Minimum		0.35	1.69	3.04
Maximum		3.61	8.23	12.84
Payback period, months:				
at minimum solvent savings		77.52	27.71	16.87
at maximum solvent savings		14.45	6.73	4.38
Lost capacity, %		6	6	6

[a] Value in parentheses represents loss or expenditure.

[b] Includes $80.00 for worker platform revisions.

TABLE D-4 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 4

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	100			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		980	1960	2940
Maximum		1060	2120	3180
Capital cost, $				
Purchase of modification				
Installation cost				
Engineering and startup				
Total	300.00[b]			
Annual operating cost, $				
Capital charges		44.03	44.03	44.03
Insurance and taxes		12.00	12.00	12.00
Maintenance and labor		6.00	6.00	6.00
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		691.37	1382.74	2074.11
Maximum		747.80	1495.62	2243.42
Net profit (loss), $/yr:				
Minimum		629.34	1320.71	2012.08
Maximum		685.77	1433.59	2181.39
Ratio of savings (expenditure) to cost:				
Minimum		10.15	21.29	32.44
Maximum		11.06	23.11	35.17
Payback period, months:				
at minimum solvent savings		5.50	.68	1.77
at maximum solvent savings		5.06	2.47	1.63
Lost capacity, %		12	12	12

[a] Value in parentheses represents loss or expenditure.

[b] Includes $100.00 for worker platform revisions.

TABLE D-5 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 4

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	100			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		980	1960	2940
Maximum		1060	2120	3180
Capital cost, $				
Purchase of modification				
Installation cost				
Engineering and startup				
Total	450.00[b]			
Annual operating cost, $				
Capital charges		66.04	66.04	66.04
Insurance and taxes		18.00	18.00	18.00
Maintenance and labor		9.00	9.00	9.00
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		691.37	1382.74	2074.11
Maximum		747.80	1495.62	2243.42
Net profit (loss), $/yr:				
Minimum		598.33	1289.70	1981.07
Maximum		654.76	1402.58	2150.38
Ratio of savings (expenditure) to cost:				
Minimum		6.43	13.86	21.29
Maximum		7.04	15.07	23.11
Payback period, months:				
at minimum solvent savings		8.49	4.07	2.68
at maximum solvent savings		7.80	3.75	2.47
Lost capacity, %		2	12	12

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[a] Value in parentheses represents loss or expenditure.

[b] Includes $100.00 for revision of worker platform.

TABLE D-6 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 16

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	Type I @ 1 to 2°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		100	200	300
Capital cost, $				
Purchase of modification	3300.00			
Installation cost				
Engineering and startup				
Total	3300.00			
Annual operating cost, $				
Capital charges		484.31	484.31	484.31
Insurance and taxes		132.00	132.00	132.00
Maintenance and labor		66.00	66.00	66.00
Replacement parts		0	0	0
Utilities		222.53	222.53	222.53
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		70.55	141.10	211.64
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(834.29)	(763.74)	(693.20)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.92)	(0.84)	(0.77)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

---

[a] Value in parentheses represents loss or expenditure.

TABLE D-7 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 16

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	Type I @ 1 to 2°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		100	200	300
Capital cost, $				
Purchase of modification	3300.00			
Installation cost	700.00			
Engineering and startup				
Total	4000.00			
Annual operating cost, $				
Capital charges		586.24	586.24	586.24
Insurance and taxes		160.00	160.00	160.00
Maintenance and labor		80.00	80.00	80.00
Replacement parts		0	0	0
Utilities		222.53	222.53	222.53
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		70.55	141.10	211.64
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(979.02)	(908.47)	(837.93)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.93)	(0.87)	(0.80)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

TABLE D-8 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 16

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	Type II @ -23 to -32°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		160	320	480
Capital cost, $				
Purchase of modification	3718.00			
Installation cost	0			
Engineering and startup	0			
Total	3718.00			
Annual operating cost, $				
Capital charges		545.65	545.65	545.65
Insurance and taxes		148.72	148.72	148.72
Maintenance and labor		74.36	74.36	74.36
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		112.88	225.75	338.63
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(997.29)	(884.42)	(771.54)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.90)	(0.80)	(0.69)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

---

[a] Value in parentheses represents loss or expenditure.

TABLE D-9 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 16

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	Type II @ -23 to -32°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		160	320	480
Capital cost, $				
Purchase of modification	3718.00			
Installation cost	3622.00			
Engineering and startup	0			
Total	7340.00			
Annual operating cost, $				
Capital charges		1077.22	1077.22	1077.22
Insurance and taxes		293.60	293.60	293.60
Maintenance and labor		146.80	146.80	146.80
Replacement parts		0	0	0
Utilities		344.44	344.44	344.44
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		112.88	225.75	338.63
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(1749.18)	(1636.30)	(1523.43)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.94)	(0.88)	(0.82)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

---

[a] Value in parentheses represents loss or expenditure.

TABLE D-10 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 17

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	75			
Refrig. freeboard chiller (RFC)	Type I @ 1°C to 2°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		180	360	540
Capital cost, $				
Purchase of modification	3300.00			
Installation cost	0			
Engineering and startup	0			
Total	3300.00			
Annual operating cost, $				
Capital charges		484.31	484.31	484.31
Insurance and taxes		132.00	132.00	132.00
Maintenance and labor		66.00	66.00	66.00
Replacement parts		0	0	0
Utilities		222.53	222.53	222.53
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		126.99	253.97	380.96
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(777.85)	(650.87)	(523.88)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.86)	(0.72)	(0.58)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		6	6	6

[a] Value in parentheses represents loss or expenditure.

TABLE D-11 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 17

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	75			
Refrig. freeboard chiller (RFC)	Type I @ 1° to 2°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		180	360	540
Capital cost, $				
Purchase of modification	3300.00			
Installation cost	700.00			
Engineering and startup	0			
Total	4000.00			
Annual operating cost, $				
Capital charges		586.24	586.24	586.24
Insurance and taxes		160.00	160.00	160.00
Maintenance and labor		80.00	80.00	80.00
Replacement parts		0	0	0
Utilities		225.53	222.53	222.53
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		126.99	253.97	380.96
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(922.58)	(795.60)	(668.61)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.88)	(0.76)	(0.64)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		6	6	6

---

[a] Value in parentheses represents loss or expenditure.

TABLE D-12 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 17

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	75			
Refrig. freeboard chiller (RFC)	Type II @ -23 to -32°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		360	720	1080
Capital cost, $				
Purchase of modification	3948.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	3948.00			
Annual operating cost, $				
Capital charges		579.41	579,41	579.41
Insurance and taxes		157.92	157.92	157.92
Maintenance and labor		78.96	78.96	78.96
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		126.99	253.97	380.96
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(1030.74)	(903.76)	(776.79)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.89)	(0.78)	(0.67)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		6	6	6

[a] Value in parentheses represents loss or expenditure.

[b] Includes $80.00 for revision of worker platform.

TABLE D-13SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 17

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	75			
Refrig. freeboard chiller (RFC)	Type II @ -23 to -32°C			
Hoist speed (V), m/s				
Load area (A), %				
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		360	720	1080
Capital cost, $				
Purchase of modification	3948.00[b]			
Installation cost	3622.00			
Engineering and startup				
Total	7570.00			
Annual operating cost, $				
Capital charges		1110.97	1110.97	1110.97
Insurance and taxes		302.80	302.80	302.80
Maintenance and labor		151.40	151.40	151.40
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		126.99	253.97	380.96
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(1779.62)	(1652.64)	(1525.65)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.93)	(0.87)	(0.80)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		6	6	6

---

[a] Value in parentheses represents loss or expenditure.

[b] Includes $80.00 for revision of worker platform.

TABLE D-14 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 21

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	Type II @ -29 to -40°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		40	80	120
Capital cost, $				
Purchase of modification	3718.00			
Installation cost	0			
Engineering and startup	0			
Total	3718.00			
Annual operating cost, $				
Capital charges		545.65	545.65	545.65
Insurance and taxes		148.72	148.72	148.72
Maintenance and labor		74.36	74.36	74.36
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		28.22	56.44	84.66
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(1081.95)	(1053.73)	(1025.51)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.97)	(0.95)	(0.92)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

TABLE D-15 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 21

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	Type II @ -29 to -40°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		40	80	120
Capital cost, $				
Purchase of modification	3718.00			
Installation cost	3622.00			
Engineering and startup	0			
Total	7340.00			
Annual operating cost, $				
Capital charges		1077.22	1077.22	1077.22
Insurance and taxes		293.60	293.60	293.60
Maintenance and labor		146.80	146.80	146.80
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		28.22	56.44	84.66
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(1830.84)	(1802.62)	(1774.40)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.98)	(0.97)	(0.95)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

TABLE D-16 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 22

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	25			
Refrig. freeboard chiller (RFC)	Type II @ -29 to -40°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		900	1800	2700
Capital cost, $				
Purchase of modification	3948.00			
Installation cost				
Engineering and startup				
Total	3948.00			
Annual operating cost, $				
Capital charges		579.41	579.41	579.41
Insurance and taxes		157.92	157.92	157.92
Maintenance and labor		78.96	78.96	78.96
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		634.93	1269.86	1904.79
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(522.80)	112.13	747.06
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.55)	0.10	0.65
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	107.40	44.03
Lost capacity, %		6	6	6

[a] Value in parentheses represents loss or expenditure.

TABLE D-17 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 22

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	75			
Refrig. freeboard chiller (RFC)	Type II @ -29 to -40°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		900	1800	2700
Capital cost, $				
Purchase of modification	3948.00			
Installation cost	3622.00			
Engineering and startup	0			
Total	7570.00			
Annual operating cost, $				
Capital charges		1110.97	1110.97	1110.97
Insurance and taxes		302.80	302.80	302.80
Maintenance and labor		151.40	151.40	151.40
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		634.93	1269.86	1904.79
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(1271.68)	(636.75)	(1.82)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.67)	(0.33)	0.00
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		6	6	6

[a] Value in parentheses represents loss or expenditure.

TABLE D-18 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 18

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	Type I @ 1 to 20°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		720	1440	2160
Capital cost, $				
Purchase of modification	3660.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	3660.00			
Annual operating cost, $				
Capital charges		579.41	579.41	579.41
Insurance and taxes		157.92	157.92	157.92
Maintenance and labor		78.96	78.96	78.96
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		507.95	1015.89	1523.84
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(590.23)	(82.29)	425.66
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.54)	(0.07)	0.39
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	60.11
Lost capacity, %		17	17	17

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[a] Value in parentheses represents loss or expenditure.

[b] Includes $120.00 for revision of worker platform.

TABLE D-19 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 18

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	Type I @ 1 to 2°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		720	1440	2160
Capital cost, $				
Purchase of modification	3820.00[b]			
Installation cost	700.00			
Engineering and startup	0			
Total	4520.00			
Annual operating cost, $				
Capital charges		663.36	663.36	663.36
Insurance and taxes		180.80	180.80	180.80
Maintenance and labor		90.40	90.40	90.40
Replacement parts		0	0	0
Utilities		222.53	222.53	222.53
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		507.95	1015.89	1523.84
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(649.14)	(141.20)	366.75
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.56)	(0.12)	0.32
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	72.96
Lost capacity, %		17	17	17

[a] Value in parentheses represents loss or expenditure.

[b] Includes $120.00 for revision of worker platform.

TABLE D-20 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 18

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	Type II @ -23 to -32°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		940	1880	2820
Capital cost, $				
Purchase of modification	4078.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	4078.00			
Annual operating cost, $				
Capital charges		598.49	598.49	598.49
Insurance and taxes		163.12	163.12	163.12
Maintenance and labor		81.56	81.56	81.56
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		663.15	1326.30	1989.45
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(521.46)	141.69	804.84
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.44)	0.12	0.68
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	101.63	42.75
Lost capacity, %		17	17	17

---

[a] Value in parentheses represents loss or expenditure.

[b] Includes $120.00 for revision of worker platform.

TABLE D-21SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 18

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	Type II @ -23 to -32°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		940	1880	2820
Capital cost, $				
Purchase of modification	4238.00			
Installation cost	3622.00			
Engineering and startup	0			
Total	7860.00			
Annual operating cost, $				
Capital charges		1153.53	1153.53	1153.53
Insurance and taxes		314.40	314.40	314.40
Maintenance and labor		157.20	157.20	157.20
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		663.15	1326.30	1989.45
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(1303.42)	(640.27)	22.88
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.66)	(0.33)	0.01
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	139.14
Lost capacity, %		17	17	17

---

[a] Value in parentheses represents loss or expenditure.

[b] Includes $120.00 for revision of worker platform.

TABLE D-22 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 23

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	Type II @ -29 to -40°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		1020	2040	3060
Capital cost, $				
Purchase of modification	3660.00			
Installation cost	0			
Engineering and startup	0			
Total	3660.00			
Annual operating cost, $				
Capital charges		537.14	537.14	537.14
Insurance and taxes		146.40	147.40	147.40
Maintenance and labor		73.20	73.20	73.20
Replacement parts		0	0	0
Utilities		222.53	222.53	222.53
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		719.59	1439.18	2158.77
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(259.68)	459.91	1179.50
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.27)	0.47	1.20
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	57.42	29.59
Lost capacity, %		17	17	17

---

[a] Value in parentheses represents loss or expenditure.

TABLE D-23 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 23

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	Type II @ -29 to -40°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		1020	2040	3060
Capital cost, $				
Purchase of modification	3948.00			
Installation cost	3622.00			
Engineering and startup				
Total	7570.00			
Annual operating cost, $				
Capital charges		1110.97	1110.97	1110.97
Insurance and taxes		302.80	302.80	302.80
Maintenance and labor		151.40	151.40	151.40
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		719.59	1439.18	2158.77
Net profit (loss), $/yr:				
Minimum		-		
Maximum		(1187.02)	(467.43)	252.16
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		0.62	(0.25)	0.13
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	102.88
Lost capacity, %		17	17	17

[a] Value in parentheses represents loss or expenditure.

TABLE D-24 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 2

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		(100)	(200)	(300)
Maximum		(480)	(960)	(1440)
Capital cost, $				
Purchase of modification	78.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	78.00			
Annual operating cost, $				
Capital charges		11.41	11.41	11.41
Insurance and taxes		3.21	3.21	3.21
Maintenance and labor		1.56	1.56	1.56
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		(70.55)	(141.10)	(211.64)
Maximum		(338.63)	(677.26)	(1015.89)
Net profit (loss), $/yr:				
Minimum		(86.68)	(157.23)	(227.77)
Maximum		(354.76)	(693.39)	(1032.02)
Ratio of savings (expenditure) to cost:				
Minimum		(5.37)	(9.75)	(14.12)
Maximum		(22.00)	(42.99)	(63.43)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

[b] Additional expenditure required for larger basket over standard basket.

TABLE D-25 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 2

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		480	960	1440
Capital cost, $				
Purchase of modification	242.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	242.00			
Annual operating cost, $				
Capital charges		35.52	35.52	35.52
Insurance and taxes		9.68	9.68	9.68
Maintenance and labor		4.84	4.84	4.84
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		(70.55)	(141.10)	(211.64)
Maximum		(338.63)	(677.26)	(1015.89)
Net profit (loss), $/yr:				
Minimum		(120.59)	(191.14)	(261.68)
Maximum		(388.67)	(727.30)	(1065.93)
Ratio of savings (expenditure) to cost:				
Minimum		(2.41)	(3.82)	(5.23)
Maximum		(388.70)	(14.54)	(21.30)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

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[a] Value in parentheses represents loss or expenditure.

[b] Cost of new basket, 20 percent larger than recommended.

TABLE D-26 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 5

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		(60)	(120)	(180)
Maximum		80	160	240
Capital cost, $				
Purchase of modification	438.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	438.00			
Annual operating cost, $				
Capital charges		64.38	64.28	64.28
Insurance and taxes		17.52	17.52	17.52
Maintenance and labor		9.76	8.76	8.76
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		(42.33)	(84.66)	(126.99)
Maximum		56.44	112.88	169.32
Net profit (loss), $/yr:				
Minimum		(132.89)	(175.22)	(217.55)
Maximum		(34.12)	22.32	78.76
Ratio of savings (expenditure) to cost:				
Minimum		(1.47)	(1.93)	(2.40)
Maximum		(0.38)	(0.25)	0.87
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	89.36	45.60
Lost capacity, %		17	17	17

---

[a] Value in parentheses represents loss or expenditure.

[b] Includes $120.00 for worker platform revisions and $78.00 additional expenditure required over standard basket.

TABLE D-27 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 5

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		(60)	(120)	(180)
Maximum		80	160	240
Capital cost, $				
Purchase of modification	762.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	762.00			
Annual operating cost, $				
Capital charges		111.83	111.83	111.83
Insurance and taxes		30.48	30.48	30.48
Maintenance and labor		15.24	15.24	15.24
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		(42.33)	(84.66)	(126.99)
Maximum		56.44	112.88	169.32
Net profit (loss), $/yr:				
Minimum		(199.88)	(242.21)	(284.54)
Maximum		(101.11)	(44.67)	11.77
Ratio of savings (expenditure) to cost:				
Minimum		(1.27)	(1.54)	(1.81)
Maximum		(0.64)	(0.28)	0.07
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	121.48
Cost capacity, %		17	17	17

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[a] Value in parentheses represents loss or expenditure.

[b] Includes $120.00 for worker platform revisions and $242.00 for a new larger basket.

TABLE D-28 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 19

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	Type II @ -23 to -32°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		280	560	840
Capital cost, $				
Purchase of modification	3796.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	3796.00			
Annual operating cost, $				
Capital charges		557.10	557.10	557.10
Insurance and taxes		151.84	151.84	151.84
Maintenance and labor		75.92	75.92	75.92
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		197.53	395.07	592.60
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(928.77)	(731.23)	(533.70)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.82)	(0.650	(0.47)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

[b] Includes $78.00 required for larger basket.

TABLE D-29 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 19

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	Type II @ -23 to -32°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		280	560	840
Capital cost, $				
Purchase of modification	3960.00[b]			
Installation cost	3622.00			
Engineering and startup	0			
Total	7582.00			
Annual operating cost, $				
Capital charges		1112.73	1112.73	1112.73
Insurance and taxes		303.28	303.28	303.28
Maintenance and labor		151.64	151.64	151.64
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		197.53	395.07	592.60
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(1711.56)	(1514.02)	(1316.49)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.90)	(0.79)	(0.69)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

[b] Includes $242.00 for a new larger basket.

TABLE D-30 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 20

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	Type I [1 to 2°C]			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		580	1160	1740
Capital cost, $				
Purchase of modification	3738.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	3738.00			
Annual operating cost, $				
Capital charges		548.59	548.59	548.59
Insurance and taxes		149.52	149.52	149.52
Maintenance and labor		74.76	74.76	74.76
Replacement parts		0	0	0
Utilities		222.53	222.53	222.53
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		409.18	818.36	1227.54
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(586.22)	(177.03)	232.14
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.59)	(0.18)	0.23
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	82.51
Lost capacity, %		17	17	17

---

[a] Value in parentheses represents loss or expenditure.

[b] Includes $78.00 for additional cost of the larger basket over the smaller one and $120.00 for revision of worker platform.

TABLE D-31 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 20

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	Type I @ 1 to 2°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		580	1160	1740
Capital cost, $				
Purchase of modification	4062.00[b]			
Installation cost	700.00			
Engineering and startup	0			
Total	4762.00			
Annual operating cost, $				
Capital charges		698.87	698.87	698.87
Insurance and taxes		190.48	190.48	190.48
Maintenance and labor		95.24	95.24	95.24
Replacement parts		0	0	0
Utilities		222.53	222.53	222.53
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		409.18	818.36	1227.54
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(797.94)	(388.76)	20.42
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.66)	(0.32)	0.02
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	136.95
Lost capacity, %		17	17	17

---

[a] Value in parentheses represents loss or expenditure.

[b] Includes $242.00 for a new longer basket to replace the old one and $120.00 for revision of worker platform.

TABLE D-32 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 20

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	Type II @ -23 to -32°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		660	1320	1980
Capital cost, $				
Purchase of modification	4156.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	4156.00			
Annual operating cost, $				
Capital charges		609.93	609.93	609.93
Insurance and taxes		166.24	166.24	166.24
Maintenance and labor		83.12	83.12	83.12
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		465.62	931.23	1396.85
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(735.11)	(269.50)	196.11
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.61)	(0.22)	0.16
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	91.94
Lost capacity, %		17	17	17

---

[a] Value in parentheses represents loss or expenditure.

[b] Includes $78.00 for additional cost of larger basket and $120.00 for revision of worker platform.

TABLE D-33SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 20

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	Type II @ -23 to -32°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		660	1320	1980
Capital cost, $				
Purchase of modification	4480.00[b]			
Installation cost	3622.00			
Engineering and startup	0			
Total	8102.00			
Annual operating cost, $				
Capital charges		1189.05	1189.05	1189.05
Insurance and taxes		324.08	324.08	324.08
Maintenance and labor		162.04	162.04	162.04
Replacement parts		0	0	0
Utilities		341.22	341.22	341.22
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		465.62	931.23	1396.85
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(1550.77)	(1085.16)	(619.54)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.77)	(0.54)	(0.31)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		17	17	17

[a] Value in parentheses represents loss or expenditure.

[b] Includes $242.00 for replacement of the old basket and $120.00 for worker platform revision.

TABLE D-34 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 10

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.08			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		(220)	(440)	(660)
Capital cost, $				
Purchase of modification	50.00			
Installation cost	0			
Engineering and startup	0			
Total	50.00			
Annual operating cost, $				
Capital charges		7.34	7.34	7.34
Insurance and taxes		2.00	2.00	2.00
Maintenance and labor		1.00	1.00	1.00
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		(155.21)	(310.41)	(465.62)
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(165.54)	(320.75)	(475.96)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(16.01)	(31.03)	(46.04)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

[b] Cost difference for a new 0.08 m/s hoist over an 0.04 m/s hoist.

TABLE D-35 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 10

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.08			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum				
Maximum		(220)	(440)	(660)
Capital cost, $				
Purchase of modification	608.70			
Installation cost	120.00			
Engineering and startup	0			
Total	728.70			
Annual operating cost, $				
Capital charges		106.94	106.94	106.94
Insurance and taxes		29.15	29.15	29.15
Maintenance and labor		14.57	14.57	14.57
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		(155.21)	(310.41)	(465.62)
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(305.88)	(461.08)	(616.29)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(2.03)	(3.06)	(4.09)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

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[a] Value in parentheses represents loss or expenditure.

TABLE D-36. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 11

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	75			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.08			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		320	640	960
Capital cost, $				
Purchase of modification	280.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	280.00			
Annual operating cost, $				
Capital charges		41.09	41.09	41.09
Insurance and taxes		11.20	11.20	11.20
Maintenance and labor		5.60	5.60	5.60
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		225.75	451.51	677.26
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		167.87	393.62	619.37
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		2.90	6.80	10.70
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		17.57	8.06	5.23
Lost capacity, %		6	6	6

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[a] Value in parentheses represents loss or expenditure.

[b] Includes $80.00 for revision of worker platform and $50.00 cost difference between 0.04 and 0.08 m/s hoist speed.

TABLE D-37. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 11

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	75			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.08			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		320	640	960
Capital cost, $				
Purchase of modification	963.70[b]			
Installation cost	120.00			
Engineering and startup	0			
Total	1083.70			
Annual operating cost, $				
Capital charges		159.04	159.04	159.04
Insurance and taxes		43.34	43.34	43.34
Maintenance and labor		0	0	0
Replacement parts		0	0	0
Utilities				
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		225.75	451.51	677.26
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		1.68	227.44	453.19
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		0.01	1.01	2.02
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		141.37	40.93	23.93
Lost capacity, %		6	6	6

[a] Value in parentheses represents loss or expenditure.

[b] Includes $80.00 for worker platform revisions.

TABLE D-38. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 12

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	100			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.08			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		180	360	540
Capital cost, $				
Purchase of modification	345.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	345.00			
Annual operating cost, $				
Capital charges		50.63	50.63	50.63
Insurance and taxes		13.80	13.80	13.80
Maintenance and labor		6.90	6.90	6.90
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		126.99	253.97	380.96
Net profit (loss), $/yr:				
Minimum				
Maximum		55.66	182.64	309.63
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		0.78	2.56	4.34
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		49.05	19.58	12.23
Lost capacity, %		12	12	12

[a] Value in parentheses represents loss or expenditure.

[b] Includes $100.00 for revision of worker platform.

TABLE D-39. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 12

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	100			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.08			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		180	360	540
Capital cost, $				
Purchase of modification	1046.20[b]			
Installation cost	120.00			
Engineering and startup	0			
Total	1166.20			
Annual operating cost, $				
Capital charges		171.15	171.15	171.15
Insurance and taxes		46.65	46.65	46.65
Maintenance and labor		23.32	23.32	23.32
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		126.99	253.97	380.96
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(114.13)	12.84	139.84
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.47)	0.05	0.58
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	127.19	59.04
Lost capacity, %		12	12	12

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[a] Value in parentheses represents loss or expenditure.

[b] Includes $100.00 for revision of worker platform.

TABLE D-40. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 13

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.08			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		400	800	1200
Capital cost, $				
Purchase of modification	410.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	410.00			
Annual operating cost, $				
Capital charges		60.17	60.17	60.17
Insurance and taxes		16.40	16.40	16.40
Maintenance and labor		8.20	8.20	8.20
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		282.19	564.38	846.58
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		197.42	479.61	761.81
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		2.33	5.66	8.99
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		21.24	9.58	6.18
Lost capacity, %		17	17	17

[a] Value in parentheses represents loss or expenditure.

[b] Includes $120.00 for worker platform revision.

TABLE D-41. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 13

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.08			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		400	800	1200
Capital cost, $				
Purchase of modification	1128.70[b]			
Installation cost	120.00			
Engineering and startup	0			
Total	1248.70			
Annual operating cost, $				
Capital charges		183.26	183.26	183.26
Insurance and taxes		49.95	49.95	49.95
Maintenance and labor		24.92	24.92	24.92
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		282.19	564.38	846.58
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		24.01	306.20	588.40
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		0.09	1.19	2.28
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		117.00	36.52	21.64
Lost capacity, %		17	17	17

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[a] Value in parentheses represents loss or expenditure.

[b] Includes $120.00 for platform revision costs.

TABLE D-42. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 14

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.08			
Load area (A), %	70			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		(1040)	(2080)	(3120)
Capital cost, $				
Purchase of modification	128.00			
Installation cost	0			
Engineering and startup	0			
Total	128.00			
Annual operating cost, $				
Capital charges		18.79	18.79	18.79
Insurance and taxes		5.12	5.12	5.12
Maintenance and labor		2.56	2.56	2.56
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		(733.70)	(1467.40)	(2201.10)
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(760.16)	(1493.87)	(2227.56)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(28.72)	(56.45)	(84.17)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

TABLE D-43. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 14

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.08			
Load area (A), %	70			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		(1040)	(2080)	(3120)
Capital cost, $				
Purchase of modification	850.70			
Installation cost	120.00			
Engineering and startup	0			
Total	970.70			
Annual operating cost, $				
Capital charges		142.46	142.46	142.46
Insurance and taxes		38.83	38.83	38.83
Maintenance and labor		19.41	19.41	19.41
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		(733.70)	(1467.40)	(2201.10)
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(934.40)	(1668.10)	(2401.80)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(4.66)	(8.31)	(11.97)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

TABLE D-44. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 15

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.08			
Load area (A), %	70			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		(100)	(200)	(300)
Capital cost, $				
Purchase of modification	488.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	488.00			
Annual operating cost, $				
Capital charges		71.62	71.62	71.62
Insurance and taxes		19.52	19.52	19.52
Maintenance and labor		9.76	9.76	9.76
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		(70.55)	(141.10)	(211.64)
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(171.45)	(241.99)	(312.54)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(1.70)	(2.40)	(3.10)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		17	17	17

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[a] Value in parentheses represents loss or expenditure.

[b] Includes $120.00 for revision of worker platform.

TABLE D-45. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 15

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.08			
Load area (A), %	70			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		(100)	(200)	(300)
Capital cost, $				
Purchase of modification	1370.70[b]			
Installation cost	120.00			
Engineering and startup	-			
Total	1490.70			
Annual operating cost, $				
Capital charges		218.78	218.78	218.78
Insurance and taxes		59.63	59.63	59.63
Maintenance and labor		29.81	29.81	29.81
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		(70.55)	(141.10)	(211.64)
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(378.77)	(449.32)	(519.86)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.25)	(0.30)	(0.35)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		17	17	17

[a] Value in parentheses represents loss or expenditure.

[b] Includes $120.00 for revision of worker platform.

TABLE D-46. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW OR RETROFIT)
Base Case

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others				
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum				
Maximum				
Capital cost, $				
Purchase of modification	0			
Installation cost	0			
Engineering and startup	0			
Total				
Annual operating cost, $				
Capital charges				
Insurance and taxes				
Maintenance and labor				
Replacement parts				
Utilities				
Credit (expenditure) due to solvent savings (loss):				
Minimum				
Maximum				
Net profit (loss), $/yr:				
Minimum				
Maximum				
Ratio of savings (expenditure) to cost:				
Minimum				
Maximum				
Payback period, months:				
at minimum solvent savings				
at maximum solvent savings				
Lost capacity, %				

[a] Value in parentheses represents loss or expenditure.

TABLE D-47. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 35

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	75			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		340	680	1020
Maximum		360	720	1080
Capital cost, $				
Purchase of modification	230.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	230.00[b]			
Annual operating cost, $				
Capital charges		33.75	33.75	33.75
Insurance and taxes		9.20	9.20	9.20
Maintenance and labor		4.60	4.60	4.60
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		220.66	441.32	661.98
Maximum		233.64	467.28	700.92
Net profit (loss), $/yr:				
Minimum		173.10	393.77	614.43
Maximum		186.09	419.73	653.37
Ratio of savings (expenditure) to cost:				
Minimum		3.64	8.28	12.92
Maximum		3.91	8.83	13.74
Payback period, months:				
at minimum solvent savings		14.35	6.68	4.36
at maximum solvent savings		13.45	6.29	4.10
Lost capacity, %		6	6	6

[a] Value in parentheses represents loss or expenditure.

[b] Includes $80.00 for revision of worker platform.

TABLE D-48. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 35

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	75			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		340	680	1020
Maximum		360	720	1080
Capital cost, $				
Purchase of modification	355.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	355.00[b]			
Annual operating cost, $				
Capital charges		52.10	52.10	52.10
Insurance and taxes		14.20	14.20	14.20
Maintenance and labor		7.10	7.10	7.10
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		220.60	441.32	661.98
Maximum		233.64	467.28	700.92
Net profit (loss), $/yr:				
Minimum		147.26	367.92	588.58
Maximum		160.24	393.88	627.52
Ratio of savings (expenditure) to cost:				
Minimum		2.01	5.01	8.02
Maximum		2.18	5.37	8.55
Payback period, months:				
at minimum solvent savings		24.09	10.72	6.89
at maximum solvent savings		22.44	10.06	6.48
Lost capacity, %		6	6	6

[a] Value in parentheses represents loss or expenditure.

[b] Includes $80.00 for revision of worker platform.

TABLE D-49. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 36

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		380	760	1140
Maximum		560	1120	1680
Capital cost, $				
Purchase of modification	360.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	360.00[b]			
Annual operating cost, $				
Capital charges		52.83	52.83	52.83
Insurance and taxes		14.40	14.40	14.40
Maintenance and labor		7.20	7.20	7.20
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		246.62	493.24	739.86
Maximum		363.44	726.88	1090.32
Net profit (loss), $/yr:				
Minimum		172.19	418.81	665.43
Maximum		289.01	652.45	1015.81
Ratio of savings (expenditure) to cost:				
Minimum		2.31	5.63	8.81
Maximum		3.88	8.77	13.65
Payback period, months:				
at minimum solvent savings		21.37	9.62	6.21
at maximum solvent savings		13.54	6.33	4.13
Lost capacity, %		17	17	17

[a] Value in parentheses represents loss or expenditure.

[b] Includes $120.00 for revision of worker platform costs.

TABLE D-50. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT) Test Group 36

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		380	760	1140
Maximum		560	1120	1680
Capital cost, $				
Purchase of modification	520.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	520.00			
Annual operating cost, $				
Capital charges		76.32	76.32	76.32
Insurance and taxes		20.80	20.80	20.80
Maintenance and labor		10.40	10.40	10.40
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		246.62	493.24	739.86
Maximum		363.44	726.88	1090.32
Net profit (loss), $/yr:				
Minimum		172.19	418.81	665.43
Maximum		289.01	652.45	1015.89
Ratio of savings (expenditure) to cost:				
Minimum		1.60	3.90	6.19
Maximum		2.69	6.06	9.45
Payback period, months:				
at minimum solvent savings		28.95	13.50	8.80
at maximum solvent savings		18.77	8.96	5.89
Lost capacity, %		17	17	17

[a] Value in parentheses represents loss or expenditure.

[b] Includes $120.00 for revision of worker platform.

TABLE D-51 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 43

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	Type I @ 1° to 2°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum				
Maximum		(200)	(4000	(600)
Capital cost, $				
Purchase of modification	3300.00			
Installation cost	0			
Engineering and startup	0			
Total	3300.00			
Annual operating cost, $				
Capital charges		484.31	484.31	484.31
Insurance and taxes		132.00	132.00	132.00
Maintenance and labor		66.00	66.00	66.00
Replacement parts		0	0	0
Utilities		222.53	222.53	222.53
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		(129.80)	(259.60)	(389.40)
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(1034.64)	(1164.44)	(1294.24)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(1.14)	(1.29)	(1.43)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

TABLE D-52. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 43

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	Type I @ 1° to 2°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum				
Maximum		(200)	(400)	(600)
Capital cost, $				
Purchase of modification	3300.00			
Installation cost	700.00			
Engineering and startup	0			
Total	4000.00			
Annual operating cost, $				
Capital charges		586.24	586.24	586.24
Insurance and taxes		160.00	160.00	160.00
Maintenance and labor		80.00	80.00	80.00
Replacement parts		0	0	0
Utilities		222.53	222.53	222.53
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		(129.80)	(259.60)	(389.40)
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(1179.39)	(1309.17)	(1438.97)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(1.12)	(1.25)	(1.72)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

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[a] Value in parentheses represents loss or expenditure.

TABLE D-53. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 43

Conditions				
Solvent	Methylene Chloride			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	Type II @ -29° to -40°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		320	640	960
Capital cost, $				
Purchase of modification	3718.00			
Installation cost	0			
Engineering and startup	0			
Total	3718.00			
Annual operating cost, $				
Capital charges		545.65	545.65	545.65
Insurance and taxes		148.72	148.72	148.72
Maintenance and labor		74.36	74.36	74.36
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		207.68	415.36	623.04
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(902.49)	(694.81)	(487.13)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.81)	(0.62)	(0.44)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

TABLE D-54. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 43

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	Type II @ -29° to -40°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum				
Maximum		320	640	960
Capital cost, $				
Purchase of modification	3718.00			
Installation cost	3622.00			
Engineering and startup	0			
Total	7340.00			
Annual operating cost, $				
Capital charges		1077.22	1077.22	1077.22
Insurance and taxes		293.60	293.60	293.60
Maintenance and labor		146.80	146.80	146.80
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum				
Maximum		207.68	415.56	623.04
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(1651.38)	(1443.70)	(1236.02)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(1.53)	(1.34)	(1.15)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

TABLE D-55. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 44

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	75			
Refrig. freeboard chiller (RFC)	Type I @ 1° to 2°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		100	200	300
Maximum				
Capital cost, $				
Purchase of modification	3530.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	3530.00[b]			
Annual operating cost, $				
Capital charges		518.06	518.06	518.06
Insurance and taxes		141.20	141.20	141.20
Maintenance and labor		70.60	70.60	70.60
Replacement parts		0	0	0
Utilities		222.53	222.53	222.53
Credit (expenditure) due to solvent savings (loss):				
Minimum		64.90	129.80	194.90
Maximum				
Net profit (loss), $/yr:				
Minimum		(887.49)	(822.59)	(757.69)
Maximum		-	-	-
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.93)	(0.86)	(0.79)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		6	6	6

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[a] Value in parentheses represents loss or expenditure.

[b] Includes $80.00 for revision of worker platform.

TABLE D-56. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 44

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	75			
Refrig. freeboard chiller (RFC)	Type I @ 1° to 2°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		100	200	300
Maximum				
Capital cost, $				
Purchase of modification	3530.00[b]			
Installation cost	825.00			
Engineering and startup	0			
Total	4355.00[b]			
Annual operating cost, $				
Capital charges		639.14	639.14	639.14
Insurance and taxes		174.20	174.20	174.20
Maintenance and labor		87.10	87.10	87.10
Replacement parts		0	0	0
Utilities		222.53	222.53	222.53
Credit (expenditure) due to solvent savings (loss):				
Minimum		64.90	129.80	194.70
Maximum				
Net profit (loss), $/yr:				
Minimum		(1058.07)	(993.17)	(928.27)
Maximum		-	-	-
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.94)	(0.88)	(0.83)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		6	6	6

[a] Value in parentheses represents loss or expenditure.

[b] Includes $80.00 for revisions of worker platform.

TABLE D-57. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 44

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	75			
Refrig. freeboard chiller (RFC)	Type II @ -29° to -40°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum				
Maximum		980	1960	2940
Capital cost, $				
Purchase of modification	3948.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	3948.00[b]			
Annual operating cost, $				
Capital charges		579.41	579.41	579.41
Insurance and taxes		157.92	157.92	157.92
Maintenance and labor		78.96	78.96	78.96
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum				
Maximum		636.20	1272.04	1908.06
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(521.53)	(114.31)	(750.33)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.45)	0.10	0.65
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	106.87	43.89
Lost capacity, %		6	6	6

[a] Value in parentheses represents loss or expenditure.

[b] Includes $80.00 for revisions of worker platform.

TABLE D-58. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 44

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	75			
Refrig. freeboard chiller (RFC)	Type II @ -29° to -40°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum				
Maximum		980	1960	2940
Capital cost, $				
Purchase of modification	3948.00[b]			
Installation cost	3747.00			
Engineering and startup	0			
Total	7695.00[b]			
Annual operating cost, $				
Capital charges		1129.32	1129.32	1129.32
Insurance and taxes		307.80	307.80	307.80
Maintenance and labor		153.90	153.90	153.90
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum				
Maximum		636.20	1272.04	1908.06
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(1296.25	(660.42)	(24.40)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.67)	(0.34)	(0.01)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		6	6	6

[a] Value in parentheses represents loss or expenditure.

[b] Includes $80.00 for revisions of worker platform.

TABLE D-59. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 45

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	Type I @ 1° to 2°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		380	760	1140
Maximum				
Capital cost, $				
Purchase of modification	3660.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	3660.00[b]			
Annual operating cost, $				
Capital charges		537.14	537.14	537.14
Insurance and taxes		146.40	146.40	146.40
Maintenance and labor		73.20	73.20	73.20
Replacement parts		0	0	0
Utilities		222.53	222.53	222.53
Credit (expenditure) due to solvent savings (loss):				
Minimum		246.62	493.24	739.86
Maximum				
Net profit (loss), $/yr:				
Minimum		(732.65)	(468.03)	(239.41)
Maximum		-	-	-
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.75)	(0.48)	(0.24)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		17	17	17

[a] Value in parentheses represents loss or expenditure.

[b] Includes $120.00 for revisions of worker platform.

TABLE D-60. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 45

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	Type I @ 1° to 2°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		380	760	1140
Maximum				
Capital cost, $				
Purchase of modification	3820.00[b]			
Installation cost	700.00			
Engineering and startup	0			
Total	4520.00			
Annual operating cost, $				
Capital charges		663.36	663.36	663.36
Insurance and taxes		180.80	180.80	180.80
Maintenance and labor		90.40	90.40	90.40
Replacement parts		0	0	0
Utilities		222.53	222.53	222.53
Credit (expenditure) due to solvent savings (loss):				
Minimum		246.62	493.24	739.86
Maximum				
Net profit (loss), $/yr:				
Minimum		(687.94)	(441.32)	(194.70)
Maximum		-	-	-
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.59)	(0.38)	(0.17)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		17	17	17

[a] Value in parentheses represents loss or expenditure.

[b] Includes $120.00 for revisions of worker platform.

TABLE D-61. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 45

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	Type II @ -29° to -40°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum				
Maximum		1280	2560	3840
Capital cost, $				
Purchase of modification	4078.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	4078.00			
Annual operating cost, $				
Capital charges		598.49	598.49	598.49
Insurance and taxes		163.12	163.12	163.12
Maintenance and labor		81.56	81.56	81.56
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum				
Maximum		830.72	1661.44	2492.16
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(353.89)	476.83	1307.55
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.30)	0.40	1.10
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	59.92	29.70
Lost capacity, %		17	17	17

[a] Value in parentheses represents loss or expenditure.

[b] Includes $120.00 for revisions of worker platform.

TABLE D-62. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 45

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	Type II @ -29° to -40°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum				
Maximum		1280	2560	3840
Capital cost, $				
Purchase of modification	4078.00			
Installation cost	3782.00			
Engineering and startup	0			
Total	7860.00			
Annual operating cost, $				
Capital charges		1153.53	1153.53	1153.53
Insurance and taxes		314.40	314.40	314.40
Maintenance and labor		157.20	157.20	157.20
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum				
Maximum		830.72	1661.44	2492.16
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(1135.85)	(305.13)	525.59
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.58)	(0.15)	0.27
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	29.97
Lost capacity, %		17	17	17

[a] Value in parentheses represents loss or expenditure.

TABLE D-63. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 37

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		(1120)	(2240)	(3360)
Maximum		(800)	(1600)	(2400)
Capital cost, $				
Purchase of modification	78.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	78.00			
Annual operating cost, $				
Capital charges		11.45	11.45	11.45
Insurance and taxes		3.12	3.12	3.12
Maintenance and labor		1.56	1.56	1.56
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		(726.88)	(1453.76)	(2180.64)
Maximum		(519.20)	(1038.40)	(1557.60)
Net profit (loss), $/yr:				
Minimum		(743.01)	(1469.89)	(2196.77)
Maximum		(535.33)	(1054.53)	(1573.73)
Ratio of savings (expenditure) to cost:				
Minimum		(46.06)	(91.13)	(136.19)
Maximum		(33.19)	(65.38)	(97.56)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

[b] Cost of large basket minus cost of small basket.

TABLE D-64. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 37

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		(1120)	(2240)	(3360)
Maximum		(800)	(1600)	(2400)
Capital cost, $				
Purchase of modification	242.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	242.00			
Annual operating cost, $				
Capital charges		35.52	35.52	35.52
Insurance and taxes		9.68	9.68	9.68
Maintenance and labor		4.84	4.84	4.84
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		(726.88)	(1453.76)	(2180.64)
Maximum		(519.20)	(1038.40)	(1557.60)
Net profit (loss), $/yr:				
Minimum		(776.92)	(1503.80)	(2230.68)
Maximum		(569.24)	(1088.44)	(1607.64)
Ratio of savings (expenditure) to cost:				
Minimum		(15.52)	(30.05)	(44.58)
Maximum		(11.37)	(21.75)	(32.13)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

[b] Cost of new basket.

TABLE D-65. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 38

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		140	280	420
Maximum		160	320	480
Capital cost, $				
Purchase of modification	438.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	438.00			
Annual operating cost, $				
Capital charges		64.28	64.28	64.28
Insurance and taxes		17.52	17.52	17.52
Maintenance and labor		8.76	8.76	8.76
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		90.86	181.72	272.58
Maximum		103.84	207.60	311.52
Net profit (loss), $/yr:				
Minimum		0.30	91.16	182.02
Maximum		13.28	117.12	220.96
Ratio of savings (expenditure) to cost:				
Minimum		0.00	1.01	2.01
Maximum		0.15	1.29	2.44
Payback period, months:				
at minimum solvent savings		142.83	41.17	24.05
at maximum solvent savings		105.58	34.21	20.41
Lost capacity, %		17	17	17

[a] Value in parentheses represents loss or expenditure.

[b] Includes $120.00 for revisions to worker platform and $78.00 for premium on a larger basket.

TABLE D-66. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 38

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		140	280	420
Maximum		160	320	480
Capital cost, $				
Purchase of modification	762.00[b]			
Installation cost	0			
Engineering and startup	0			
Total	762.00[b]			
Annual operating cost, $				
Capital charges		111.83	111.83	111.83
Insurance and taxes		30.48	30.48	30.48
Maintenance and labor		15.24	15.24	15.24
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		90.86	181.92	272.58
Maximum		103.84	207.68	311.52
Net profit (loss), $/yr:				
Minimum		(66.69)	24.17	115.03
Maximum		(53.71)	50.13	153.97
Ratio of savings (expenditure) to cost:				
Minimum		(0.42)	0.15	0.73
Maximum		(0.34)	0.32	0.98
Payback period, months:				
at minimum solvent savings		-	104.30	51.22
at maximum solvent savings		-	80.47	42.05
Lost capacity, %		17	17	17

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[a] Value in parentheses represents loss or expenditure.

[b] Includes $120.00 for revisions to worker platform and $242.00 for a new large basket.

TABLE D-67. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 46

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	Type I @ 1° to 2°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		(600)	(1200)	(1800)
Maximum				
Capital cost, $				
Purchase of modification	3378.00			
Installation cost	0			
Engineering and startup	0			
Total	3378.00			
Annual operating cost, $				
Capital charges		495.76	495.76	495.76
Insurance and taxes		135.12	135.12	135.12
Maintenance and labor		67.56	67.56	67.56
Replacement parts		0	0	0
Utilities		222.53	222.53	222.53
Credit (expenditure) due to solvent savings (loss):				
Minimum		(389.40)	(778.80)	(1168.20)
Maximum				
Net profit (loss), $/yr:				
Minimum		(1310.37)	(1699.77)	(2089.17)
Maximum		-	-	-
Ratio of savings (expenditure) to cost:				
Minimum		(1.42)	(1.84)	(2.27)
Maximum		-	-	-
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

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[a] Value in parentheses represents loss or expenditure.

TABLE D-68. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 46

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	Type I @ 1° to 2°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		(600)	(1200)	(1800)
Maximum				
Capital cost, $				
Purchase of modification	3542.00			
Installation cost	700.00			
Engineering and startup	0			
Total	4242.00			
Annual operating cost, $				
Capital charges		622.56	622.56	622.56
Insurance and taxes		169.68	169.68	169.68
Maintenance and labor		84.84	84.84	84.84
Replacement parts		0	0	0
Utilities		222.53	222.53	222.53
Credit (expenditure) due to solvent savings (loss):				
Minimum		(389.40)	(778.80)	(1168.20)
Maximum				
Net profit (loss), $/yr:				
Minimum		(1489.01)	(1878.41)	(2267.81)
Maximum				
Ratio of savings (expenditure) to cost:				
Minimum		(1.35)	(1.71)	(2.06)
Maximum		-	-	-
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

TABLE D-69. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 46

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	Type II @ -29° to -40°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum				
Maximum		(100)	(200)	(300)
Capital cost, $				
Purchase of modification	3796.00			
Installation cost	0			
Engineering and startup	0			
Total	3796.00			
Annual operating cost, $				
Capital charges		557.10	557.10	557.10
Insurance and taxes		151.84	151.84	151.84
Maintenance and labor		75.92	75.92	75.92
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum				
Maximum		(64.90)	(121.80)	(194.70)
Net profit (loss), $/yr:				
Minimum				
Maximum		(1191.20)	(1256.10)	(1321.00)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(1.06)	(1.11)	(1.17)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

TABLE D-70. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 46

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	Type II @ -29° to -40°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum				
Maximum		(100)	(200)	(300)
Capital cost, $				
Purchase of modification	4038.00			
Installation cost	3782.00			
Engineering and startup	0			
Total	7820.00			
Annual operating cost, $				
Capital charges		1147.66	1147.66	1147.66
Insurance and taxes		312.80	312.80	312.80
Maintenance and labor		156.40	156.40	156.40
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum				
Maximum		(64.90)	(129.80)	(194.70)
Net profit (loss), $/yr:		-	-	-
Minimum				
Maximum		(2023.20)	(2088.10)	(2153.00)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(1.03)	(1.07)	(1.10)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

TABLE D-71. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 47

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	Type I @ 1° to 2°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		340	680	1020
Maximum				
Capital cost, $				
Purchase of modification	3660.00			
Installation cost	0			
Engineering and startup	0			
Total	3660.00			
Annual operating cost, $				
Capital charges		537.14	537.14	537.14
Insurance and taxes		140.40	140.40	140.40
Maintenance and labor		73.20	73.20	73.20
Replacement parts		0	0	0
Utilities		222.53	222.53	222.53
Credit (expenditure) due to solvent savings (loss):				
Minimum		220.66	441.32	661.98
Maximum				
Net profit (loss), $/yr:				
Minimum		(758.61)	(537.95)	(317.29)
Maximum				
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.78)	(0.55)	(0.33)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		17	17	17

[a] Value in parentheses represents loss or expenditure.

TABLE D-72. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 47

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	Type I @ 1° to 2°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		340	680	1020
Maximum				
Capital cost, $				
Purchase of modification	3820.00			
Installation cost	700.00			
Engineering and startup	0			
Total	4520.00			
Annual operating cost, $				
Capital charges		663.36	663.36	663.36
Insurance and taxes		180.80	180.80	180.80
Maintenance and labor		90.40	90.40	90.40
Replacement parts		0	0	0
Utilities		222.53	222.53	222.53
Credit (expenditure) due to solvent savings (loss):				
Minimum		220.66	441.32	661.98
Maximum				
Net profit (loss), $/yr:				
Minimum		(936.43)	(715.77)	(495.11)
Maximum				
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.81)	(0.62)	(0.43)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		17	17	17

[a] Value in parentheses represents loss or expenditure.

TABLE D-73. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 47

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	Type II @ -29° to -40°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum				
Maximum		940	1880	2820
Capital cost, $				
Purchase of modification	4156.00			
Installation cost	0			
Engineering and startup	0			
Total	4156.00			
Annual operating cost, $				
Capital charges		609.93	609.93	609.93
Insurance and taxes		166.24	166.24	166.24
Maintenance and labor		83.12	83.12	83.21
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum				
Maximum		610.06	1220.12	1830.18
Net profit (loss), $/yr:				
Minimum				
Maximum		(590.67)	19.39	629.45
Ratio of savings (expenditure) to cost:				
Minimum				
Maximum		(0.49)	0.02	0.52
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	136.36	51.11
Lost capacity, %		17	17	17

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[a] Value in parentheses represents loss or expenditure.

TABLE D-74. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 47

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	125			
Refrig. freeboard chiller (RFC)	Type II @ -29° to -40°C			
Hoist speed (V), m/s	0.04			
Load area (A), %	70			
Others	-			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum				
Maximum		940	1880	2820
Capital cost, $				
Purchase of modification	4156.00			
Installation cost	3946.00			
Engineering and startup	0			
Total	8102.00			
Annual operating cost, $				
Capital charges		1189.05	1189.05	1189.05
Insurance and taxes		324.08	324.08	324.08
Maintenance and labor		162.04	162.04	162.04
Replacement parts		0	0	0
Utilities		341.44	341.44	341.44
Credit (expenditure) due to solvent savings (loss):				
Minimum				
Maximum		610.06	1220.12	1830.18
Net profit (loss), $/yr:				
Minimum				
Maximum		(1406.55)	(796.49)	(186.43)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(0.70)	(0.39)	(0.09)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		17	17	17

[a] Value in parentheses represents loss or expenditure.

TABLE D-75. SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 39

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others	0.25			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum				
Maximum		(1720)	(3440)	(5160)
Capital cost, $				
Purchase of modification	1330.00			
Installation cost	90.00			
Engineering and startup	0			
Total	1420.00			
Annual operating cost, $				
Capital charges		208.39	208.39	208.39
Insurance and taxes		56.80	56.80	56.80
Maintenance and labor		28.40	28.40	28.40
Replacement parts		0	0	0
Utilities		201.67	403.33	605.00
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		(1116.28)	(2232.56)	(3348.84)
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(1650.42)	(2929.49)	(4247.44)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(3.33)	(4.20)	(4.73)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

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[a] Value in parentheses represents loss or expenditure.

TABLE D-76 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER RETROFIT

Test Group 39

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others - lip exhaust m^3/s per m^2	0.25			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		(1720)	(3440)	(5160)
Maximum				
Capital cost, $				
Purchase of modification	1330.00			
Installation cost	90.00			
Engineering and startup	0			
Total	1420.00			
Annual operating cost, $				
Capital charges		208.39	208.39	208.39
Insurance and taxes		56.80	56.80	56.80
Maintenance and labor		28.40	28.40	28.40
Replacement parts		0	0	0
Utilities		201.67	403.33	605.00
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		(1116.28)	(2232.56)	(3348.84)
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(1611.55)	(2929.50)	(4247.440
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(3.25)	(4.20)	(4.73)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

TABLE D-77 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 40

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others - lip exhaust m^3/s per m^2	0.50			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		(2280)	(4560)	(6840)
Capital cost, $				
Purchase of modification	1330.00			
Installation cost	40.00			
Engineering and startup	0			
Total	1420.00			
Annual operating cost, $				
Capital charges		208.39	208.39	208.39
Insurance and taxes		56.80	56.80	56.80
Maintenance and labor		24.40	24.40	24.40
Replacement parts		0	0	0
Utilities		403.33	806.67	1210.00
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		(1479.72)	(2959.44)	(4439.16)
Net profit (loss), $/yr:				
Minimum		-	-	
Maximum		(2176.65)	(4056.71)	(5942.76)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(3.14)	(3.70)	(3.96)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

TABLE D-78 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER RETROFIT

Test Group 40

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others - lip exhaust m^3/s per m^2	0.50			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		(2280)	(4560)	(6840)
Capital cost, $				
Purchase of modification	1330.00			
Installation cost	90.00			
Engineering and startup	0			
Total	1420.00			
Annual operating cost, $				
Capital charges		208.39	208.39	208.39
Insurance and taxes		56.80	56.80	56.80
Maintenance and labor		24.40	24.40	24.40
Replacement parts		0	0	0
Utilities		403.33	806.67	1210.00
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		(1479.72)	(2959.44)	(4439.16)
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		(2176.64)	(4059.71)	(5942.76)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		(3.14)	(3.70)	(3.96)
Payback period, months:				
at minimum solvent savings		-	-	-
at maximum solvent savings		-	-	-
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.

TABLE D-79 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 41

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others, cross current m/s	0.10			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		140	280	420
Capital cost, $				
Purchase of modification	b			
Installation cost	0			
Engineering and startup	0			
Total	0			
Annual operating cost, $				
Capital charges		0	0	0
Insurance and taxes		0	0	0
Maintenance and labor		0	0	0
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		90.86	181.72	272.58
Net profit (loss), $/yr:				
Minimum				
Maximum		90.86	181.72	272.58
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		0.00	0.00	0.00
Payback period, months:				
at minimum solvent savings		b	b	b
at maximum solvent savings		b	b	b
Lost capacity, %		0	0	0

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[a] Value in parentheses represents loss or expenditure.

[b] Since capital cost is zero, this is included.

TABLE D-80SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 41

Conditions				
Solvent	Methylene chloride			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others - cross current m/s	0.1			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		140	280	420
Capital cost, $				
Purchase of modification	0.0[b]			
Installation cost				
Engineering and startup				
Total	0.0			
Annual operating cost, $				
Capital charges		0	0	0
Insurance and taxes		0	0	0
Maintenance and labor		0	0	0
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		90.86	181.72	272.58
Net profit (loss), $/yr:				
Minimum		-	-	-
Maximum		90.86	181.72	272.58
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		0.00	0.00	0.00
Payback period, months:				
at minimum solvent savings		b	b	b
at maximum solvent savings		b	b	b
Lost capacity, %		0	0	0

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[a] Value in parentheses represents loss or expenditure.

[b] Since capital cost is zero, this is undefined.

TABLE D-81SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (NEW)

Test Group 42

Conditions				
Solvent	Metnylene chloride			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others - cross current m/s	0.26			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		(2360)	(4720)	(7080)
Capital cost, $				
Purchase of modification	-0-[b]			
Installation cost	0			
Engineering and startup	0			
Total	-0-			
Annual operating cost, $				
Capital charges		0	0	0
Insurance and taxes		0	0	0
Maintenance and labor		0	0	0
Replacement parts		0	0	0
Utilities				
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		(1531.64)	(3063.28)	(4594.92)
Net profit (loss), $/yr:				
Minimum				
Maximum		(1531.64)	(3063.28)	(4594.92)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		0.00	0.00	0.00
Payback period, months:				
at minimum solvent savings		b	b	b
at maximum solvent savings		b	b	b
Lost capacity, %		0	0	0

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[a] Value in parentheses represents loss or expenditure.

[b] Since capital cost is zero, this is undefined.

TABLE D-82 SUMMARY OF SAVINGS OR EXPENDITURES RESULTING FROM MODIFICATION OF DEGREASER (RETROFIT)

Test Group 42

Conditions				
Solvent	1,1,1-Trichloroethane			
Freeboard ratio (FR), %	50			
Refrig. freeboard chiller (RFC)	-			
Hoist speed (V), m/s	0.04			
Load area (A), %	50			
Others - cross current m/s	0.26			
Annual operating hours		2000	4000	6000
Solvent savings (loss), kg/yr:[a]				
Minimum		-	-	-
Maximum		(2360)	(4720)	(7080)
Capital cost, $				
Purchase of modification	0			
Installation cost	0			
Engineering and startup	0			
Total	0			
Annual operating cost, $				
Capital charges		0	0	0
Insurance and taxes		0	0	0
Maintenance and labor		0	0	0
Replacement parts		0	0	0
Utilities		0	0	0
Credit (expenditure) due to solvent savings (loss):				
Minimum		-	-	-
Maximum		(1531.64	(3063.28)	(4594.92)
Net profit (loss), $/yr:				
Minimum				
Maximum		(1531.64)	(3063.28)	(4594.92)
Ratio of savings (expenditure) to cost:				
Minimum		-	-	-
Maximum		0.00	0.00	0.00
Payback period, months:				
at minimum solvent savings		b	b	b
at maximum solvent savings		b	b	b
Lost capacity, %		0	0	0

[a] Value in parentheses represents loss or expenditure.